OPLAN 32-3 VOLUME V

CAPE CANAVERAL AIR FORCE STATION

SPILL PREVENTION, CONTROL, AND

COUNTERMEASURE PLAN

Prepared for:

U.S. AIR FORCE

45th Space Wing

Patrick Air Force Base, Florida

September 2001 (3rd Revision)

October 1999 (2nd Revision)

October 1998 (1st Revision)

August 1997 (Original)

REGISTERED PROFESSIONAL ENGINEER'S CERTIFICATION

I hereby certify that this Spill Prevention, Control, and Countermeasure Plan for Cape Canaveral Air Force Station, Florida, has been designed by me and by individuals under my direct supervision; that I am familiar with the provisions of Code of Federal Regulations, Chapter 40, Part 112 (Oil Pollution Prevention); and that the plan has been prepared in accordance with good engineering practices.

//SIGNED//

James J. Newton, P.E., DEE
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09/4/01

Date Signed

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1.0 INTRODUCTION

1.1. PURPOSE AND SCOPE

Regulations issued by the U.S. Environmental Protection Agency (EPA) require a spill prevention, control, and countermeasure (SPCC) plan for nontransportation-related, oil product-storing facilities that could possibly discharge oil in harmful quantities to navigable waters of the United States. The regulatory requirements and guidelines for the preparation of an SPCC plan are set forth in Chapter 40, Code of Federal Regulations (CFR), Part 112, *Oil Pollution Prevention; Nontransportation-Related Onshore Facilities*. In addition, certain other federal and Florida Department of Environmental Protection (FDEP) regulations govern the storage, transport, and handling of petroleum substances.

This SPCC plan contains all of the elements of a SPCC plan required by the oil spill prevention regulations currently in effect. The scope of this plan goes beyond the 40 CFR 112 requirements because it addresses relevant requirements of 40 CFR 280 *(Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks* [USTs]); and Chapter 62-761, Florida Administrative Code (F.A.C.), for Storage Tank Systems. A matrix comparing sections of the SPCC plan with applicable federal and state requirements is presented in Table 1-1. This plan provides provisions for oil spill prevention based on the types and quantities of petroleum substances present, and the conditions of storage and use.

1.2. RELATIONSHIP TO OTHER PLANS

The 45 SW OPLAN 32-3, *Hazardous Material (HAZMAT) Emergency Response and Training*, describes roles and responsibilities, outlines regulatory guidelines, and directs specific activities of personnel responding to an incident and planning the prevention of accidental releases. OPLAN 32-3 has been written to meet the requirements of AFI 32-4002. This SPCC plan, which focuses on oil spill prevention measures at Cape Canaveral Air Force Station (CCAFS), constitutes Volume V of the 45 SW OPLAN 32-3.

TABLE 1-1 SPCC COMPLIANCE MATRIX

	SPCC Plan	AST References		UST References	
SPCC Element	Section	40 CFR 112	62-761, F.A.C.	40 CFR 112	62-761 F.A.C.
GENERAL ELEMENTS					
Purpose and scope of coverage	1.1	112.1	761.100	112.1	761.100
Current revision date		112.5(b)		112.5(b)	
Plan availability/revisions	6.4	112.5(a-c)		112.5(a-c)	
Engineer certification	page i	112.3(d)		112.3(d)	
Facility layout/drainage	3.0; 4.4.1	112.7(e)(1)	761.500(3)	112.7(e)(1)	
Recordkeeeping	6.1	112.7(8)	761.710	112.7(8)	761.710
Inspections	4.4.3; 5.4.2	112.7(8)	761.600(1)	112.7(8)	761.600(1)
Spill history	2.4	112.7(a)			
Facility security	6.3	112.7(e)9		112.7(e)9	
Training	6.2	112.7(e)(10)		112.7(e)(10)	

SPCC Element	SPCC Plan Section	AST References		UST References	
		40 CFR 112	62-761, F.A.C.	40 CFR 112	62-761 F.A.C.
ABOVEGROUND TANK PROVISIONS					
Tank construction	4.3.1	112.7(e)(2)	761.500(3)(b)		
Secondary containment	4.3.2	112.7(c)	761.500(3)(c)		
SPCC Element	Section	40 CFR 112	62-761, F.A.C.	40 CFR 112	62-761 F.A.C.
Integral piping	4.3.3	112.7(e)(3)	761.500(4)(b)		
Transfer operations	4.3.4; 4.4.2	112.7(e)(3)	761.500(4)(3)(d)		
Facility upgrades/replacement	4.3.6	112.7(e)(2)	761.510		
Facility operation/maintenance	4.4		761.700		
UNDERGROUND STORAGE TANK PROVISIONS					
Tank construction	5.3			112.7(e)(2)	761.500(2)(b)
Secondary containment	5.3.1			112.7(c)	761.500(2)(c)
Integral piping	5.3.1			112.7(e)(3)	761.500(4)
Transfer operations	4.4.2			112.7(e)(4)	761.500(4)
Facility upgrades/replacement	5.3.3; 5.3.4			112.7(e)(2)	761.510
Facility operation/maintenance	5.4				761.700

Source: ESC, 2001

The remaining volumes contained in 45 SW OPLAN 32-3 address the following aspect of oil and hazardous materials management:

- Volume I: *HAZMAT Emergency Response Plan*. This volume is used as a guide by the 45 Space Wing as a policy and procedures guide for the conduct of hazardous materials emergency response operations.
- Volume II: *HAZMAT Incident Prevention and Hazard Analysis Program*. This volume is used primarily by environmental and contingency personnel to identify locations where HAZMAT are stored and used; to ensure all spill prevention controls are in-place to mitigate potential HAZMAT releases; to evaluate the hazards and risks associated with accidental releases; and to pre-plan emergency response strategies and tactics.
- Volumes III and IV: *Facility Response Plan (FRP)*. Volumes III and IV provide Oil Pollution Act of 1990 (OPA 90) emergency response planning compliance for port and shore facilities which have the potential for oil or hazardous substance release into waterways, as determined by OPA 90 regulations (40 CFR 112.22).

In addition to the 45 SW OPLAN 32-3, there are other documents that provide useful information for oil spill prevention and response, such as the following:

- 45 SW OPLAN 19-14, *Petroleum Products and Hazardous Waste Management Plan*. This plan provides procedures for proper hazardous waste management and applies to all personnel, organizations, and contractors of the 45th Space Wing located at all owned, leased, or operated sites. This plan was prepared according to the hazardous waste contingency planning requirements of 40 CFR 260 through 280 and Chapter 62-730, F.A.C.
- 45 SW OPLAN 19-16, *PCB Items Control Plan*. This plan provides key information for the use, storage, and disposal of polychlorinated biphenyls (PCBs) and PCB-contaminated substances, consistent with 40 CFR 761.
- *Storm Water Pollution Prevention Plan, CCAFS*. This plan provides detailed drainage descriptions and best management practices for storm water pollution prevention, consistent with National Pollutant Discharge Elimination System (NPDES) requirements found in 40 CFR 126.26.

1.3. SPCC PLAN FORMAT

This plan is formatted to allow the user to easily locate relevant design requirements, operating procedures, and administrative procedures. The procedures that apply specifically to regulated ASTs or USTs are separated into stand-alone sections. The administrative and other procedures which generally apply to both AST/USTs (e.g, recordkeeping) are consolidated.

There are a relatively high number of regulated facilities existing at CCAFS, and the inventory is experiencing continual change at the present time due to facility upgrades, removal, and replacement. Therefore, the tabular results of SPCC planning and survey processes are provided in the appendices to this plan as an approximation of the regulated facilities present at CCAFS. An updated inventory list will be maintained by the CCAFS Environmental Support Contractor (ESC), and the list will be periodically inserted (at least annually) into this plan. For practical reasons, inserting an updated tank inventory list will not be treated as a formal revision to this plan requiring engineer certification. The conditions and timeframes that trigger plan revisions are described in Section 6.4.

1.4. RESPONSIBILITY

The Civil Engineering Squadron, Base Civil Engineer (45 CES/CE) is responsible for the overall implementation of this plan. Facility operators and managers of regulated storage systems must have the proper training, equipment, containment facilities, and other resources necessary to implement the spill prevention measures described herein. Base civil engineering (BCE) must ensure that facility managers perform periodic inspections on regulated storage facilities and containment systems, as described in Section 4.4.3 and 5.4.2.

1.5. SPILL RESPONSE

The purpose of this plan is to provide oil spill prevention measures. Spill response measures for ASTs and USTs are also provided in 45 SW OPLAN 32-3, Volumes I and III, and Chapter 62-770, F.A.C.

2.0 GENERAL FACILITY INFORMATION

2.1. SITE LOCATION

CCAFS is located on a barrier island in Brevard County on the east coast of Florida, about 155 miles south of Jacksonville. The facility is bounded by the Atlantic Ocean to the east and the Banana River to the west (Figure 2-1). The base is accessed by State Road (SR) 405 (NASA Causeway West) which is the entrance road to the Cape from the west, and SR 401, which provides entry from the south.

2.2. INSTALLATION OVERVIEW

CCAFS was established in 1950 as a site for a U.S. Missile Testing Range. The first missile, a German V-2 rocket with an Army WAC Corporal second stage, was launched from the Cape on July 24, 1950. A total of 33 launch pads have been constructed at CCAFS since 1950. In 1952, a 10,000-foot-long skid strip was constructed to support aerodynamic missile recovery operations but is now primarily used as a runway for logistic and test support purposes.

The installation encompasses approximately 15,804 acres, and major features include 81 miles of paved roads, a centralized industrial area, 6 active launch pads, and 27 inactive launch pads. The active launch pads are used by both the Air Force and commercial enterprises for the deployment of satellites into orbit. Unimproved grounds account for approximately 11,877 acres (75 percent) of the total acreage.

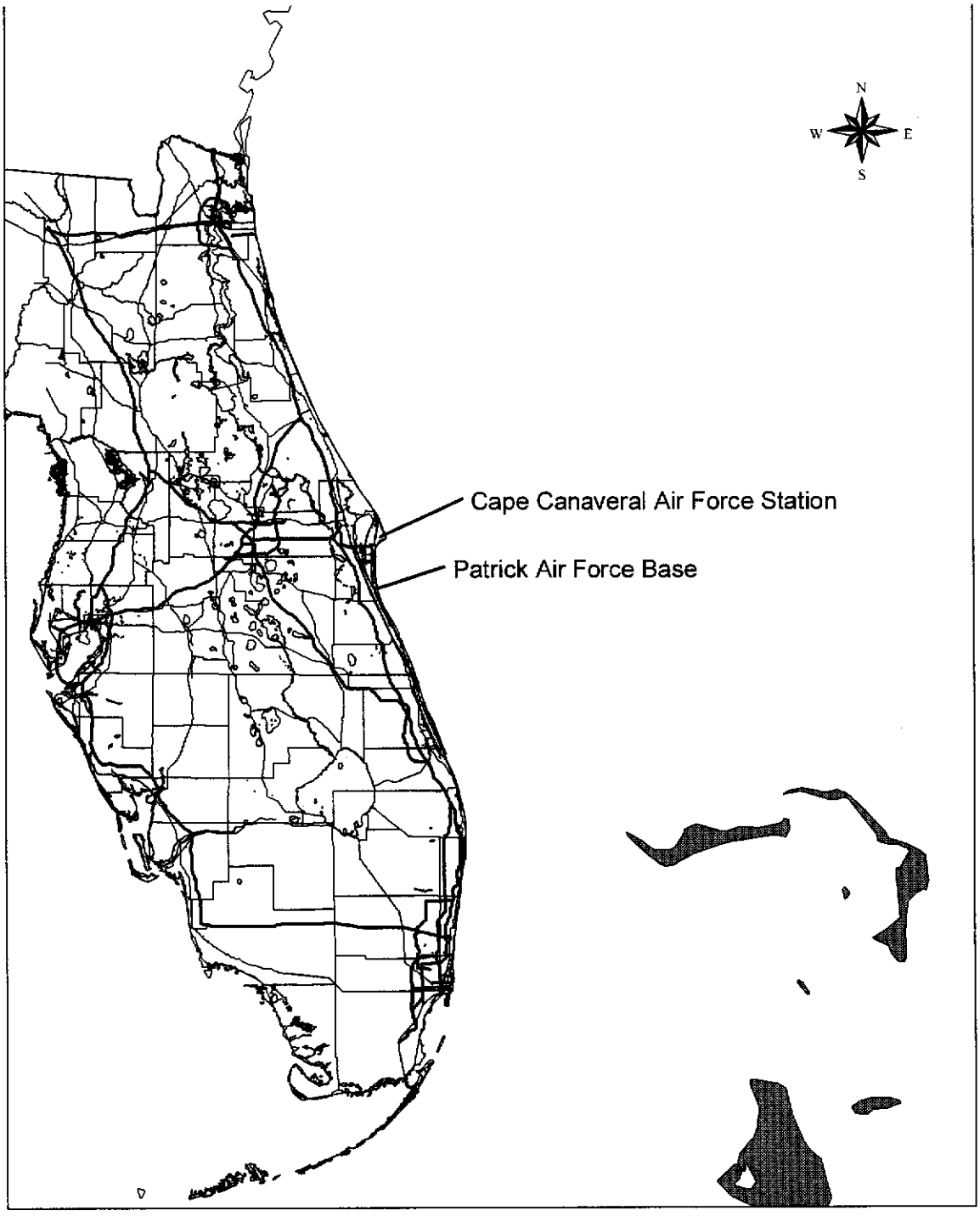
2.3. REGULATED FACILITIES OVERVIEW

There are over 100 aboveground tanks and 10 underground tanks (excluding oil-water separators) installed at CCAFS. There is also an additional NASA underground tank at FSA #1. The locations of these facilities are provided on maps contained in Appendix A.

Appendix A contains an inventory of the ASTs used for storing petroleum substances including rocket fuel (JP-5); diesel; vehicular fuel (mogas); No. 2 diesel fuel (DF-2); and new or used petroleum, oil, and lubricants (POL). The inventory includes the tank identification number, capacity, construction material, date of installation, and contents for each AST facility (Chapter 62-761, F.A.C.).

Appendix A also contains an inventory of the USTs used for storing petroleum substances including mogas, heating fuel, and used oil (Chapter 62-761, F.A.C.). The policy contained in 45 SW OPLAN 19-14 is to replace UST systems with AST systems unless site conditions (e.g., safety, fire codes) require underground installation.

FIGURE 2-1 SITE LOCATION MAP



2.3.1 AST SYSTEMS

2.3.1.1 General Facilities Description

AST facilities are used to store petroleum-based substances for various uses including the following:

- Emergency generator fuel
- Heating fuel (including boiler fuel)
- Vehicle and equipment fuel
- Lubricating oils
- Used POL destined for recycling
- Jet fuels and rocket propellants

A detailed tank inventory is maintained by the ESC. This inventory is maintained in a computer database and provides the location, capacity, usage, status (active, inactive, or removed) of all tanks at CCAFS. The database includes information on the tanks which have been removed as part of CCAFS's ongoing program to retrofit, upgrade, remove, and/or replace ASTs to meet applicable standards. A summary of the primary AST uses is given below.

2.3.1.2 *Boiler/Generator Tanks*

The most common uses for ASTs are emergency generator and boiler uses, which together account for more than 80 percent of the total number of ASTs present. These tanks range in size from 150 to 10,000 gallon capacity, with typical sizes ranging between 500 to 2,000 gallons. Fuel oil usage from the boiler tanks is generally based on heating demands, which are seasonal. Fuel oil usage from the emergency tanks is a function of the generator usage for power and generator testing. These tanks are located throughout CCAFS where heating oil and emergency power generation is needed. Many of the boilers at CCAFS have been converted over to natural gas.

2.3.1.2.1 Rocket Propellant Storage

Significant rocket propellant (RP-1) storage is present at Space Launch Complex (SLC) 36 Pad A and B areas. The in-service 28,000-gallon tank at Pad A was installed in 1996, and the 28,000-gallon tank at Pad B was installed in 1998. There are four 6,500-gallon RP-1 tanks located at SLC 17 Pads A and B.

2.3.1.2.2 Material Storage Areas

A significant amount of aboveground POL storage occurs in small tanks, drums, and other containers. These areas have been identified in the CCAFS storm water pollution prevention plan as Section "P" areas and include, among others, Hangar Y, the Vehicle Wash Area, Hangar U, equipment and boat shops, and the train engine maintenance area.

2.3.1.3 Regulated AST Facilities

ASTs with oil storage capacities greater than 660 gallons are subject to the federal SPCC requirements, while ASTs with capacities greater than 550 gallons are subject to State of Florida requirements. The smaller of these two capacities is considered *regulated* and are subject to the design and operating provisions described in Section 4.0. *Regulated* tanks are greater than 550 gallons and usually support operations other than boilers ie; emergency generators, vehicle fueling, launch support, etc.

Storage tanks and drums with less than 550-gallon capacity are subject to the federal SPCC requirements when the cumulative oil storage in the specific area exceeds 1,320 gallons, and a spill in the area has a reasonable potential to impact navigable waters (40 CFR 112.1). Such storage facilities must comply with the provisions for secondary containment, oil transfer, and drainage control contained in Section 4.0.

State rules provide an exemption for ASTs less than 30,000 gallons storing heating oil for consumption on the premises. Most of the boiler tanks would qualify for this exemption, although the less stringent federal SPCC requirements would still apply.

Oil storage facilities that do not meet the SPCC criteria specified above are subject to best management practices for storm water pollution prevention, which are similar to the SPCC provisions. Storage facilities containing oil which is contaminated with hazardous wastes or PCBs is subject to the provisions of 45 SW OPLAN 19-14 and 45 SW OPLAN 19-16, respectively.

Additional information on the potential impact on storm water drainage, and best management practices to prevent storm water impacts are contained in the *Storm Water Pollution Prevention Plan for CCAS* prepared by CH2M Hill, Inc. (1996).

2.3.2 UNDERGROUND STORAGE TANKS

The federal SPCC regulations apply to facilities with buried storage capacities of 42,000 gallons. The FDEP and federal tank regulations apply to individual tank capacities of greater than 110 gallons. The smaller of these two capacities is considered *regulated* for purposes of this plan and are subject to the design and operating provisions described in Section 5.0.

There are over 11 UST systems in-place at CCAFS, 1 of which is a NASA tank. A few of these tanks are used for boilers and are typically between 275 and 2,000 gallon capacity. Five of the tanks are used to store mogas or diesel for vehicles and are regulated under the FDEP rules as *vehicular* fuel tank systems. These tanks are located at Hangar Y and the main vehicle fueling station in the Industrial Area. CCAFS receives a large portion of its fuel from the PAFB storage area, which is then staged in trucks at FSA #4.

2.3.3 NASA-OWNED TANKS

Five of the ASTs included in the tank inventory (Appendix A) are NASA-owned tanks located at CCAFS. These ASTs include three 20,000 JP-8 tanks and two 20,000 gallon RP-1 tanks located at FSA #1, the largest in-service AST storage area at CCAFS.

A separate SPCC plan has been prepared for FSA #1 which is included in Appendix B. Other NASA-owned tanks which once supported boilers have been converted to natural gas.

2.4. SPILL EVENTS HISTORY

OPLAN 32-3, Volume IIIA, page FRP-37 contains information on spills that have occurred during the 12 months preceding the date of this plan. Information on oil spill events that occur between plan updates will be kept on file by the ESC.

TABLE 2-1 SPILL HISTORY TABLE FROM JANUARY1, 2000 TO PRESENT

Facility	Date	Material	Description	Amount	Reportable	Comments
1727	8/29/01	Dielectric Oil	During the removal of a transformer, the unit began leaking releasing approximately 2-3 gallons of dielectric oil to the asphalt surface below. East Coast Power was the contractor.	2-3 gallons	No	The contractor performed the necessary clean-up activities. The serial number of the transformer is 8949-61, laboratory analysis 343, with a PCB level of 20 ppm as determined 29 December 1997.
1375	7/31/01	Hydraulic Oil	A hydraulic line near the center hatch began leaking on the underside of the plane.	2 quarts	No	Absorbent pads were used to wipe up the few drops on the concrete and the underside of the plane.
90540	7/27/01	Hydraulic Oil	USS Yorktown noticed a sheen on the wster and called the Duty office. A seal near the rutter was discovered to be leaking. The surrounding area around the boat was boomed and the seal replaced.	2 gallons	Yes	Reported to National Response Center by CEV. NRC case number 574576.
49800	7/27/01	Transmission Oil	A large stain, presumably to be transmission fluid was found in the southeast parking lot of facility 49800.	2-3 gallons	No	It appears as if a vehicle or equipment developed a leak and was then driven off towards Phillips Parkway, still leaking.
1727	7/18/01	DF2	A seal fail around a fuel pump on a large generator. This resulted in the release of 7- 10 gallons of DF2 to the surrounding parking area.	7 - 10 Gallons	No	
90320	6/6/01	Diesel	A diesel leak was discovered on a personal vehicle as it was entering the installation. The vehicle was stopped and the operator repaired the leak.	1 gallon	No	
1638	6/22/01	Oil and water	Danella Construction was removing lead jacketed cable from the manholes. Oil in the manhole absorbed into the cable being placed in a dump truck. The oil was running out the back of the dump truck.	1.5 gals	No	Danella was a sub to General Dynamics (POC Mitch Newman). Air Force POC is Mark Stephenson, Comm Sq, at 494-6451
33002	6/15/01	Daraclean 282GF	While flushing lines on the O2 systems a flex line ruptured releasing the cleaning solution to the surrounding area. This was an EELV operation.	400 gallons	Yes	This material has a pH of 12.6 to 12.9 per the MSDS. Due to security, no pictures were available.

Facility	Date	Material	Description	Amount	Reportable	Comments
1375	6/15/01	DF2	A large compressor supporting the launch operations at the skid strip released 3 gallons of DF2 over a period of several days. The release was to asphalt and remained on site. The SGS spill team responded.	3 gallons	No	Due to security, pictures were not available.
1725	6/11/01	Trim Sol	Rusty 55 gallon drum of Trim Sol began leaking and was noticed by a mechanic. An absorbent sock was wrapped around the drum and spill pads were applied to the Trim Sol on the floor.	2 Gallons	No	Hangar K Hi-bay
63805	5/31/01	Dielectric Fluid	Oil was leaking around the gasket between the cooling fins and the main body of the transformer (serial number C-01933-5-1)	~10 gals	No	This transformer was retrofilled in Aug 1998. Previous PCB concentration was 127 ppm. One year after retrofilling, the concentration was <10 ppm.
33000	4/24/01	Hydraulic Oil	A hose failed on a truck releasing ~15 gallons of hydraulic oil to the asphalt parking lot below. This was a Waste Management truck on-site to pick-up a rolloff box.	15 gallons	No	SLC 37 EELV Commercial site. Boeing is responsible for all clean-up and disposal.
44501	4/20/01	Gasoline	An individual was fueling a government vehicle using the automatic dispensing mechanism and it failed to shut-off when the tank was full.	1 gallon	No	Occurred on pump #11. Pumps 11 and 12 have these mechanisms on them. They need to be removed.
70465	4/17/01	Hydraulic oil	A fitting failed on a hydraulic hose releasing ~5 gallons of hydraulic oil to the crushed stone and railroad ties for the track.	5 gallons	No	To avoid disturbing the railroad tracks, absorbent pads were used to soak up the free liquid and the rest was left to natural attenuation.
5510	4/11/01	Hydraulic oil	A seal in a hydraulic pump failed releasing ~2 gallons of oil to the surface below.	2 gallons	No	Lockheed Martin on-site personnel performed the clean-up.
70510	4/3/01	Hydraulic oil	A hose fitting failed while a mower was in operation. The tractor was on the parking lot and cutting with a wing mower when the failure occurred.	1 gallon	No	The operator immediately shut down the tractor and diked off a stormwater turn out to prevent any oil from getting to an adjacent swale.
1711	3/28/01	Latex Paint	Trailer had 2 five gallon open buckets of paint on tailgate and a piece of equipment was removed from the toung causing the rear of the trailer to drop spilling the paint.	10 Gallons	no	Contractor personnel cleaning up spilled paint.

Facility	Date	Material	Description	Amount	Reportable	Comments
81550	3/12/01	PCB Dielectric Oil	One of the PCB items inside the transmitter units inside Command Control began leaking. Suspect that a weld at the base is leaking. SN: 918727.	4 ounces	No	CSR will likely remove all this out-dated equipment. It is currently a back-up for the low power side of Command Distract.
81900	3/7/01	Dielectric oil	The switch exploded and caught on fire. Some of the oil sprayed on the ground and on adjacent vegetation. Most of the oil was consumed in the fire. This failure knocked out power to Command Destruct about 14 hours before a Shuttle launch.	<20 gallons	No	Oil switch serial no. 621-89-0100, sample no. 1269, latest analysis 1/19/98, <2 ppm PCBs.
1641	3/2/01	DF2	Portable tank line leaked. A new unit was brought on-site and the other was taken back to the shop for maintenance.	1/2 GAL	NO	
1732	2/22/01	Mineral oil	The primary and secondary bushings began leaking on the transformer (serial no. 99891, sample no. 192). The oil was sampled in 1997 and reported at 2 ppm PCBs.	2-3 gallons	No	Because of a Titan launch scheduled for 27 Feb, the transformer cannot be repaired and the soil cannot be remediated until after launch.
47115	2/19/01	Water/20% solution of polypropylene	Due to PS #7 going down, no make up water was being supplied to the chiller forcing this system to work harder. A steel tank in this closed-looped system had some corrosion on the bottom and began leaking.	200 Gallons	NO	Approximately 400 SF of grassy area was impacted. SGS will sample soil for contamination after the Titan launch. No dig days prohibit any at this time.
1606	2/16/01	Urethane paint	Three one gallon paint cans fell off a pallet being moved by a forklift in a parking lot near Hangar G on CCAFS. The cans were crushed by the forklift before the operator was able to stop.	3 GALLONS	NO	
49800	2/12/01	Diesel Fuel	Able Oil Co. was filling the fuel tank on ESC maintenance vehicle and overflowed the tank.	2-3 Gallons	No	
1705	1/31/01	Machine Oil	While loading a drill press onto a truck approximately 2 gallons of machine oil spilled out onto the asphalt.	2 gallons	no	Message left on answering machine, did not get message until 2/01/01. Did not get pictures
66244	1/17/01	Hydraulic oil	A hydraulic line on a crane leaked on the Hangar AF Wharf. SGS Post-Emergency Response Team handled the clean-up.	0.5 gallons	No	USA/NASA accepted the one drum of waste because SGS was doing NASA support.
60680	1/16/01	Refrigerant oil	A 5-gallon container of refrigerant oil failed inside a hazardous material locker and leaked onto the concrete floor around the locker.	2 gallons	No	No official report was done because this was inside a locker inside a building.

Facility	Date	Material	Description	Amount	Reportable	Comments
66250	1/12/01	Hydraulic oil	A well drilling rig developed a hydraulic leak that went unnoticed by the operators as they moved from well site to site. A visible line of oil could be followed for nearly 300 feet.	5 gallons	No	Approximately 3 gallons were released to the grassy areas and 2 gallons were released to asphalt. The drillers were doing environmental sampling for a NASA remediation site around Hgr AF and AF CEL building.
10911 (01648E)	1/5/01	Diesel Fuel	Abandoned 200 gallon fuel tank leaked about 10 gallons of diesel from valve onto grassy area. About 10 sq. ft area affected. One port on the top was not closed allowing rainwater to collect in the tank, which had not been properly cleaned.	10 gallons	no	During clean-up, extensive contamination was discovered likely from the previous tank on site. A DRF was filed with FDEP on 1/16/01.
47105	1/4/01	Aerozine-50	LM was disconnecting a fuel line and ~6 drops of Aerozine 50 came out and hit the metal surface below on the 7th level.	6 drops	No	One security officer said he thought he smelled A-50 and was taken to the dispensary for precautionary measures.
92050	12/15/00	Sulfuric acid	While loading a barge, a pallet of four plastic drums (each containing 55-gallons) of sulfuric acid broke apart. One individual got acid on his skin but on-scene emergency personnel were able to handle the situation.	45 Gallons	No	The items are usually loaded by crane but the contractor became impatient and began loading with a forklift. It is believed he went over the ramp at a high rate of speed.
33002	12/13/00	Citric acid/Demin. water	A hose clamp failed on a pressure hose used in circulating demineralized water with citric acid to clean pipes in the basement of a building that supports the EELV program.	450 gallons	No	Cal Chem is a sub of Kinetics
27200	12/8/00	Diesel	Although the hose had a valve on the end and was capped, it still leaked. The DF-2 soaked through the wood floor and onto the asphalt under the trailer.	~10 gallons	No	The trailer (which housed a large generator) and the tanks inside were turned into DRMO.
5527 CX-36A	11/30/00	Motor oil	Spill absorbent was applied to the oil on the pavement to soak it up. Spent absorbent was shoveled into a plastic container and will be disposed of in accordance with all federal, state, local and Air Force regulations.	1 gallon	no	Cart will be taken to Hangar K to determine source of leak. Spill pans will be used underneath the cart for all future operations. This is a non-reportable, non-emergency HazMat release per 45th Space Wing Operations Plan 32-3.

Facility	Date	Material	Description	Amount	Reportable	Comments
62720	11/29/00	Bilge oily water	Over 5000 gallons of oily wastewater overflowed bilge storage tanks after a potable water line being used to recharge the system was left on overnight. Spill was released to grassy area, asphalt and concrete pads. Spill was contained to site.	5000 + gallons	yes	Water valve was turned off and plant was shut down, initial cleanup efforts under way.
90540	11/6/00	Oily bilge	Oily bilge was being drained from the engine room to the oil storage tank when a small amount spilled out of the transfer piping system.	1 qt	Yes	The oil quickly dissipated on the water and clean-up was not possible.
81900	11/3/00	Gasoline	A fuel line leaked on a personal vehicle in the parking lot. The owner was able to repair the leak. The FD through down granular absorbent.	0.25 gallons	No	
6300	10/26/00	DF2	Fuel tank overfilled on an Onan GenSet Generator. Sun caused pressure in tank to build causing fuel to drain out of fuel tank.	5 gallons	no	Adsorbent put down to soak up diesel and cleaned up by SGS spill team. Generator shop will allow generator to run for four hours to drain down tank to prevent reoccurrence.
1375	10/19/00	Hydraulic oil	A fitting on a hydraulic line began leaking when the flight crew of a C5 aircraft attempted to take the vehicle from its kneeling position to its upright position on the Skid Strip Apron.	9 gallons	No	The oil spread around several of the aircraft tires. Cleanup was necessary prior to rolling the plane forward.
70000	10/16/00	Hydraulic oil	A hose burst while a crane was lifting some counterweights releasing 15 gallons of hydraulic oil to the asphalt below.	15 gallons	No	Granular absorbent was used to clean up all the oil.
49641	10/10/00	DF-2	The fuel line going to the fuel filter developed a leak over a long weekend. Most of the fuel was contained inside the building but 0.5 gals were sucked into the engine fan and blown out of the building through the exhaust ventilation system.	2 gallons	No	This is the third release to this site which is currently under assessment from the previous contaminations. 45 CES/CEVR will notify FDEP as an FYI.
47118	10/6/00	Polypropylene glycol	Two drainoff valves for the chiller unit are located just underground on the side of the hill leading up to the pad. The mower clipped one of the valves.	2-3 gallons	No	The valves are supposedly buried just beneath the ground to avoid damage during launch activities.
79100	9/30/00	Sewage	While pumping sewage from a tanker to a vacuum truck a 4" transfer hose coupling failed releasing ~5 gallons of sewage to the concrete wharf.	~5 gallons	No	
44426	9/26/00	DF-2	This spill was caused by a dripping muffler exhaust pipe.	~1 quart	No	

Facility	Date	Material	Description	Amount	Reportable	Comments
44625	9/20/00	DF-2	A fuel line on a portable floodlight became loosened spilling ~2 gallons of diesel fuel onto the underlying.	~2 gallons	No	
27220	9/16/00	DF-2	A MILCON subcontractor employee was dispensing fuel from the supply line to a mobile generator trailer to smaller 5-gallon containers. The fuel originated from a day tank located inside the trailer. The fuel lines have been disconnected and capped off.	~0.5 gallons	No	The contractor responsible for this release was Canaveral Construction
92050	9/11/00	Used oil	While pumping oil to a used oil tank onboard the Sea Mark III Tug, the engineer failed to confirm adequate space in the tank. The tank was overfilled and ~25 gallons of used oil entered the waters of Port Canaveral	~25 gallons	YES	
50305	9/8/00	Hydraulic fluid	The hydraulic system, on a C-5 , began leaking releasing ~6 gallons of hydraulic oil to the concrete taxi-way of the skid strip	6 gallons	No	
1708	9/1/00	Hydrochloric acid	A 1-gallon container of hydrochloric acid was found to be leaking on a wooden table	1 pint	No	
1068	8/28/00	Gear Oil	A dump truck, hauling rip-rap for the ACOE north revetment project, suffered a broken rear axle. The broken axle allowed the release of ~6 gallons of oil to the asphalt roadway and parking lot.	6 gallons	No	The owner of the truck was RES Hauling
1063	8/24/00	Hydraulic Oil	A piece of heavy equipment was being moved when one of the hydraulic lines failed releasing ~15 gallons of hydraulic oil to the concrete surface below	~15 gallons	No	
44537	8/24/00	Hydraulic Oil	A bobcat suffered a hydraulic line failure and released ~3 gallons of hydraulic oil onto the asphalt surface below.	~3 gallons	No	
50305	8/22/00	Hydraulic fluid	A crane suffered a loosened fitting releasing ~1 gallon of hydraulic fluid to the asphalt apron of the runway	~1 gallon	No	
81900	8/22/00	MOGAS	A car parked at the ROCC was found to be leaking in the parking lot	~10 gallons	No	
1641	8/21/00	MOGAS	A GOV had a leaking fuel tank. Approx. ~2 gallons of gasoline leaked to the asphalt parking lot	~2 gallons	No	

Facility	Date	Material	Description	Amount	Reportable	Comments
70500	8/21/00	Sulfuric acid	A battering in a UPS system failed releasing ~8 ounces of acid to the floor of the ups room on level 4.5 of the VIB	8 ounces	No	
62720	8/18/00	Oily bilge	A subcontractor conducting work at the Trident IWWTP accidentally ruptured a 6" pipe while excavating.	200 gallons	Yes	
88900	8/18/00	DF-2	While filling 55-gal drums with DF-2 several gallons were spilled onto the soil surrounding the drums.	3 gallons	No	The exact spill site is across the street from facility 88900. No spill report was entered into IWIMS as this was an ACOE project.
73700	8/16/00	R-22	An air conditioning condenser failed releasing <40 pounds of R-22 to the atmosphere.	<40 pounds	No	
28001	8/11/00	Halon 1301	A fire suppression system malfunctioned releasing ~76 pounds of halon into the interior of a room at JDMTA	~76 pounds	No	
00006-4	8/9/00	DF-2	A leaking pipe union on a DF-2 fuel supply pipe loosened releasing ~ 10 gallons to the interior of the generator shack. This then ran off to the concrete pad and soil outside of the shack.	~10 gallons	Yes	This spill was reportable as a malfunction of a regulated tank system
44603	8/7/00	Hydraulic oil	An oil seal on a lawn tractor failed releasing ~3-4 gallons of hydraulic oil to the asphalt parking lot below.	~3-4 gallons	No	
1708	7/31/00	DF-2	A slight weep occurred on a valve connected to an emergency generator. The DF-2 dripped from the fitting to the concrete pad	<1 pint	No	
90540	7/12/00	Diesel	A sheen was observed in the poseidon wharf. The origin was unknown. The USCG advised not to report or clean-up due to the unknown origin and unknown quantity.	UNK	No	This spill was not entered into IWIMS a memo is in the spill file.
79100	6/12/00	Oil	While oiling the cables on the portal crane approx. 1 gallon of oil leaked onto the wharf. A trace amount (<1 pint) then leaked into the waters of Port Canaveral	~1 gallon	Yes	
38200	6/10/00	Hydraulic oil	A high lift suffered a hydraulic failure spilling ~5 gallons of hydraulic oil onto the concrete parking lot below.	~5 gallon	No	Harper Mechanical was the responsible party

Facility	Date	Material	Description	Amount	Reportable	Comments
1115	6/6/00	Hydraulic oil	A forklift suffered a hydraulic line failure spilled ~1 gallon of hydraulic oil onto the parking lot.	~1 gallon	No	
1645	5/22/00	antifreeze	A GOV suffered a coolant leak which released ~1 gallon of antifreeze to the asphalt parking lot	~1 gallon	No	
Phillips Parkway North of Skid Strip Rd	5/8/00	Sulfuric acid	While transporting several batteries, in a cube van, the driver swerved to avoid an accident. In doing so several batteries fell over and leaked ~1 gallon of battery acid (sulfuric acid) into the back of the truck.	~1 gallon	No	
33008	5/5/00	DF-2	Baker Concrete Construction, a Boeing subcontractor, illegally disposed of 2 55-gallon drums to the scrub near SLC-37. One of the drums, labeled diesel fuel, leaked ~1 quart of fuel onto the ground.	~1 quart	No	
	5/4/00	A-50	A fly-away disconnect failed spilling ~1 gallon of A-50 to the launch stand and the rocket.	~1 gallon	No	
36950	5/2/00	gasoline	While trying to move a beached boat off of the beach the hull split releasing ~3 gallons of MOGAS to the beach and ocean	~3 gallons	Yes	
1740	4/26/00	Hydraulic oil	A hydraulic line on a tanker truck failed	~1 qt	No	
1708	4/26/00	Antifreeze, sulfuric acid, oil	A demineralized water tank truck collided with a dump truck. As a result of the accident battery acid, coolant, and oil were released.	6 gallons, 1 quart, 0.5 gallons	No	
24449	4/19/00	Hydraulic fluid	While clearing a line of sight in CX-18 the rotary axe suffered a broken hydraulic line spilling ~10 gallons of hydraulic oil onto the freshly cut vegetation and the underlying soil.	10 gallons	No	
85125	4/18/00	Antifreeze	A POV parked in the parking lot of the Delta Ops Bldg. Was found to be leaking antifreeze to the asphalt parking lot.	~ 0.5 gallons	No	
70500	4/14/00	Refrigerant oil	An air conditioning chiller released ~1 pint of refrigerant oil to the roof of the VIB. This oil was then washed off the roof by rain to the retention pond on the NE corner of the VIB	~1 pint	No	

Facility	Date	Material	Description	Amount	Reportable	Comments
59921	4/5/00	Mineral oil	A large pad mounted transformer was found to be leaking oil onto the concrete pad which then ran to an adjacent grassy area.	~5 gallons	No	
40906A	3/22/00	DF-2	A fuel line attached to a 7500 gallon tank was found to be leaking into the concrete secondary containment	~1 gallon	No	
47112	3/21/00	A-50	While replacing a site glass workers failed to fully purge the line. Upon opening the line ~ 16oz of A-50 was released	~16 ounces	No	
70650	3/20/00	Hydraulic oil	A mobile crane suffered a broken hydraulic line spilling ~3 gallons to the gravel and railroad tracks below.	~3 gallons	No	
60540	3/14/00	Paint	After completing a painting job H.I.S. painting poured out their excess paint and thinner onto a grassy area adjacent to facility 60540	~1 gallon	No	
5520	3/9/00	RG-1	To perform a launch test 10 gallons of RG-1 was poured into the concrete deluge pond along with 35,000 gallons of water.	10 gallons	No	
1724	3/9/00	Mercury	A worker dropped a mercury thermometer, which then broke releasing ~2 ml of mercury to the floor	~2 ml	No	
49711	3/8/00	Paint	While transporting several buckets of paint, on a stake body truck, one bucket fell off of the truck at the intersection of Central Control Rd and Phillips Pkwy spilling ~ 4 gallons of paint onto the roadway	~4 gallons	No	
1738	2/22/00	Oil	While moving a truck the driver accidentally hit a container of oil spilling ~10 gallons of oil to the concrete floor.	~10 gallons	No	
34705	2/10/00	Hydraulic fluid	A hydraulic line on a manlift failed spilling ~ 3 gallons of hydraulic oil to the asphalt and an adjacent grassy area.	~3 gallons	No	
70650	2/1/00	Mercury	A mercury switch, used to control a lathe, failed spilling ~10 ml of mercury to the interior of an electrical box.	~10 ml	No	
1748	1/24/00	R-22	An A/C accumulator coil failed releasing ~95 pounds of R-22 to the atmosphere	~95 pounds	No	

Facility	Date	Material	Description	Amount	Reportable	Comments
5533	1/22/00	UDMH Rinsate	While purging a fuel line twice the purge fuel was used. The extra rinsate overfilled the collection container and spilled out onto the MST.	~5 gallons	No	
62720	1/18/00	Used oil	A pipe valve that connects to a secondary containment failed spilling ~ 0.5 gallons of oil to the ground below.	~0.5 gallons	No	
62720	1/7/00	Muriatic acid (15% HCl)	A pipe brace broke placing a strain on the muriatic acid feed line flange. This flange then failed releasing ~561 gallons of acid to the concrete floor/containment.	561 gallons	No	
44636	1/5/00	DF-2	While moving a portable diesel fuel tank a valve was inadvertently bumped opening the valve.	~25 gallons	No	

3.0 DRAINAGE AND SPILL PATHWAYS

The *Storm Water Pollution Prevention Plan for CCAS*[1] provides information on drainage and spill pathways at industrial areas where oil storage occurs. Excerpts from this document are provided in this section and Appendix C to provide general and area-specific descriptions of spill pathways.

3.1. SURFACE WATER PATHWAYS

Primary construction of existing facilities on the base occurred before the advent of storm water quality guidelines and regulations. As a result, much of the existing storm water system design at CCAFS was intended primarily for the efficient collection and discharge of untreated storm water runoff. Some natural treatment is provided for this storm water runoff in the form of a pond, open channels, and roadside swales. Also, natural storm water collection systems serve to retain storm water for percolation into site soils and for evaporation. The aquatic habitats at CCAFS include 40 acres of borrow pits, a 12-acre pond, and 1,600 acres of lagoon in the Titan Area.

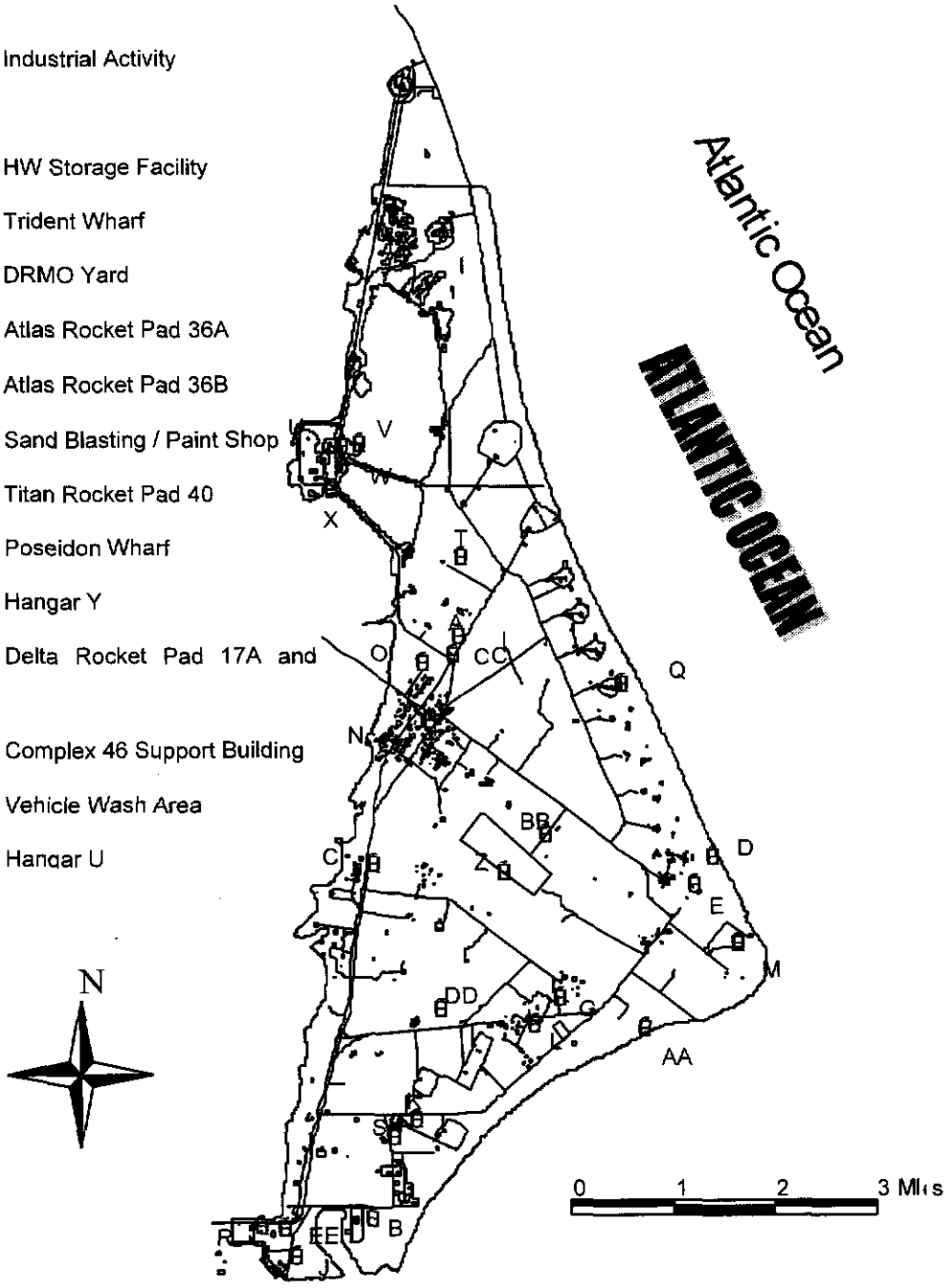
The upper soil layers on CCAFS are composed of sands with a fairly high permeability that readily absorb rain water during normal rainfall events. However, high-volume rainfall events can provide sufficient water to exceed the soil's storage capacity, resulting in surface ponding and storm water runoff.

The SPCC regulations apply to facilities which, due to location, have a reasonable potential to discharge oil in *harmful quantities* (40 CFR 110) to navigable water. This potential is generally the greatest at industrial areas near the Banana River or Atlantic Ocean, where a discharge could enter trenches, drains, culverts, and other conveyances leading to outfalls. Outfall descriptions were provided in the CCAFS storm water pollution plan for 31 industrial areas, as depicted in Figure 3-1.

[1]CH2M Hill, Inc. 1996.

FIGURE 3-1 AREAS OF INDUSTRIAL ACTIVITIES ON CCAFS

Map I.D.	Industrial Activity
A	HW Storage Facility
B	Trident Wharf
C	DRMO Yard
D	Atlas Rocket Pad 36A
E	Atlas Rocket Pad 36B
G	Sand Blasting / Paint Shop
I	Titan Rocket Pad 40
J	Poseidon Wharf
K	Hangar Y
L	Delta Rocket Pad 17A and 17B
M	Complex 46 Support Building
N	Vehicle Wash Area
O	Hangar U



These outfalls are important from a spill perspective because they often represent conduits where oil spills may migrate rapidly to navigable water. Table 3-1 provides a summary description of the outfalls and drainage patterns identified in the storm water pollution prevention plan. Figures showing the location of these outfalls for each industrial area are provided in Appendix C.

The storm water plan also identified *internal* outfalls within or near the boundaries of industrial areas. Internal outfalls may percolate to ground water (a closed internal outfall) or they may connect to a final outfall leading to a navigable water. Area-specific drainage maps have been provided (Appendix C) for each industrial area which depict the potential oil spill pathways for the area. Narrative descriptions of the outfalls shown in Appendix C are in the storm water pollution prevention plan.

3.2. GROUND WATER PATHWAYS

Water that infiltrates into the soil and does not evaporate or transpire will eventually reach the ground water table and be added to the surficial aquifer. In the barrier islands area where the soil is very sandy, a large part of the rainfall soaks into the ground. Although part of this water is returned to the atmosphere by evaporation and transpiration, most of it seeps downward to the zone of saturation and moves laterally toward the ocean or river.

The high permeability soils existing at CCAFS result in a high potential for impacts from oil spills and other surficial contaminants. Surface spills must be cleaned up in a timely manner to avoid percolation of contaminated water or product. Conduits to the ground water (i.e., closed outfalls) must be blocked off if a spill occurs to prevent the rapid downward migration of petroleum. Release detection provisions provided for USTs in Section 5.0 must be implemented to provide early detection of UST leaks, which represent the greatest overall risk of oil impacts to ground water.

TABLE 3-1 SUMMARY OF DRAINAGE PATERNS FOR CCAFS INDUSTRIAL AREA

Industrial Area	Facility Number	Map Number	Outfalls	No. of Sub-Basins	Description
Hazardous Waste Storage Facility	44200/ 44205	Figure 10-1	1	3	Runoff from the Hazardous Waste Storage Building and the adjacent paved areas passes through a dry retention area that may infrequently discharge offsite via Outfall 001. The western subbasin is a closed basin. Ultimately, storm water would cross under Titan III and drain into the Banana River, about 4,500 ft downstream of the Hazardous Waste Storage Facility
Trident Wharf	79100	Figure 11-1	2	3	Runoff from the shoreside facilities is conveyed offsite via a 30-inch pipe under South Patrol Road, and ultimately drains into the Banana River. The total flow length from the wharf is about 13,000 ft. Runoff from the wharf itself drains directly into the shipping channel.
DRMO Yard	66510	Figure 12-1	Sheet Flow	4	Northern and central subbasins drain toward the west as sheet flow. Southeast and south-central subbasins drain toward the south in the form of sheet flow. The off-site runoff enters undeveloped land adjacent to the Banana River.
Atlas Rocket Pad 36A	Complex 36	Figure 13-1	7	7	Outfall 004 drains an area with no industrial activity and discharges into an offsite swale. Outfalls 001, 002, and 003 are controlled by valves at the pipe outlets. Outfalls 005, 006, and 007 drained into vegetated swales. Complex 36 drains into the Banana River via an open ditch system. The total flow length in about 4.1 miles.
Atlas Rocket Pad 36B	Complex 36	Figure 14-1	5	5	Outfall 001 and 002 are controlled by valves. Outfall 004 is elevated, creating a significant dry retention storage. Outfall 003 drains runoff collected under the ramp. Outfall 005 drains into the swale. Runoff from Complex 36B drains into the Banana River via the same ditch system serving complex 36A. The total flow length is about 3.7 miles.
Sand Blasting/ Paint Shop	24404	Figure 16-1	Sheet flow	3	The area having uncovered and uncontained piles of sand blast residue, drains from sheet flow to the southwest. Sheet flow from the launch silo and paint equipment building is retained in shallow, grassed swales. The area east of the silo discharges to an inlet, then drains into the deluge basin. Runoff from former Complex 18 drains into the Banana River via a ditch serving Delta Rocket Pads (Complex 17).
Titan Rocket Pad 40	Complex 40	Figure 18-1	6	5	Outfall 003 drains an area with no industrial activity. Outfalls 001 and 002 drain into ditches controlled by an offsite weir. Outfalls 004 and 006 drain into swales. Outfall 005 is controlled by an onsite weir. Outfall 003 drains a very small area near the road.
Poseidon Wharf	90540	Figure 19-1	3	3	Shoreside runoff drains into grassed swales which are connected to pipes leading to the ship channel.

Industrial Area	Facility Number	Map Number	Outfalls	No. of Sub-Basins	Description
Hangar Y	1115	Figure 20-1	3	3	80 Percent of the site area drains into a system of swales and paved ditches. Runoff from outfalls 001 and 003 drains into a ditch along Pier Road, then discharges into a regional ditch system serving the Trident Wharf. The total flow length from the outfalls to the Banana River is about 7,500 ft. Outfall 002 travels south from the Hangar Y complex, turns west under MACA road, then combines with outfalls 001 and 002
Delta Rocket Pads 17A and 17B	Complex 17	Figure 20-1 Figure 20-2	1	3	Most of the runoff is collected in a drainage ditch and discharges under the perimeter road at the north corner of the complex at outfall 001. This outfall drains into a ditch which intersects a large ditch serving the sand blast/ paint shop complex. The total flow length from outfall 001 to the Banana River is about 11,200 ft.
Support Building (Complex 46)	3100	Figure 22-1	1	2	Outfall 001 receives runoff from the Support Building and the associated paved areas. Runoff from the remainder of the site sheet flow to a flat grassed border. All onsite runoff is believed to be percolated or evaporated, and there may be no regional outfall in this CCAFS basin.
Vehicle Wash Area	49760	Figure 23-1	1	2	Outfall 001 received runoff from the vehicle wash rack and the associated pavement area and drains into a ditch along the east side of Samuel C. Phillips Parkway, then ultimately drains into the Banana River. The total flow length is about 7,600 ft.
Hangar U	1744	Figure 21-1	3	3	Outfall 001 drains the northeast part of the Hangar U site. Outfall 002 drains the southeast part of the site, the Outfall 003 drains the southwestern quadrant of the Hangar U site. Outfalls 002 and 003 also receive runoff from the adjacent Hangar T site. Outfalls 001 and 003 enter a large ditch along the east side of Hangar Road. The total flow length from these two outfalls to the Banana River is about 5,000 ft. Outfall 003 drains into a ditch along the west side of Scrub Jay Street. The total flow length from Outfall 003 to the Banana River is about 3,700 ft.
Air Force Wharf	92050	Figure 26-1	6	11	Outfalls 001, 001a, 001b, and 001c drain into a perimeter ditch which discharges into the port waters. Outfall 002 drains into port waters via a submerged pipe.
Titan Vertical Integration Building	70500 and 70503	Figure 27-1	6	7	All outfall drains into a wetland area that borders the VIB on the west. Outfalls 002 through 005 drain paved areas on the west side of the site. Outfall 006 discharges from a storm water pond on the north side of the site. The hazardous waste accumulation building has three pipe outfalls that discharge water from the secondary containment.

Industrial Area	Facility Number	Map Number*	Outfalls	No. of Sub-Basins	Description
Train Engine Maintenance and Transporter Refurbishing Areas	70650 and 70665	Figure 28-1	2	6	Outfall 001 drains the northeast portion of the transporter refurbishing area, and the painting booth area. Outfall 002 receives runoff from the train engine maintenance area parking lot, building floor drains and the valved discharge from the drum storage facility; it drains into the Banana River
Missile Inert Storage (MIS)	75251	Figure 29-1	4	4	Outfall 001 receives runoff from the parking lot and the grassed areas around the MIS, and drains into the wetland area. Two 18-inch corrugated metal pipes drain two grassed area into the Banana River in the northwest and northeast portion of the site where industrial activities do not exist. Outfall 002 discharges runoff collected in a trench drain on the west side of the POL storage building. Outfall 003 is a valved PVC pipe from the secondary containment area of the paint storage building. Outfall 004 drains a small portion of the paved area located on the south side of the MIS. Outfalls 002, 003, and 004 discharge into the Banana River with short flow length.
New Trident Submarine Wharf Wastewater Pretreatment Plant		Figure 30-1	2	3	Outfall 001 is a swale that collects runoff from the north side of the site; it drains into a wetland area on the northeast side of the facility. Outfall 002 is a swale draining the southeast side of the site; it discharges into a ditch connecting to a nearby canal system, then ultimately drains into the Banana River
Centaur Processing Facility		Figure 32-1	4	2	Site runoff is collected in a perimeter swale which discharges offsite only infrequently during severe rainfall events. The discharges, when occurring, will drain into the Banana River via a nearby canal system.

*Maps are located in Appendix C.

3.3. SPILL FLOW AND DIRECTION

According to the SPCC regulations for discharge scenario planning (40 CFR 112, Appendix E), a "small discharge" is defined as any spill volume less than or equal to 2,100 gallons. Such discharge constitutes the most probable spill scenario and may result from system leaks, tank loading/unloading accidents, and complete failure of tanks with capacities below 2,000 gallons. Table 3-2 provides a summary of rate and flow predictions. It should be noted that all oil spills above 25 gallons on pervious surfaces are significant because they are reportable under Florida rules and are capable of causing a sheen or water quality violation, which is reportable under SPCC regulations. Any volume of petroleum product released to navigable waters is reportable.

A "medium discharge" would be defined as a loss of 10 percent of the largest tank, or 2,800 gallons. This would involve rupture of the RP-1 tank at the SLC 36 Pad A. The "worst-case" discharge volume of 25,200 gallons (90 percent of largest tank) would involve complete failure of the 28,000-gallon tank, a highly unlikely event. The 28,000-gallon RP-1 tank was installed in 1996.

If a spill occurs outside of AST containment, the nearest culverts or inlets downstream of the spill would be blocked. The maps provided in Appendix C are intended to provide general information on the local flow patterns and nearest opportunities for discharge to navigable water. Response to an oil spill release must be based on in-field observations made by the spill response team.

TABLE 3-2 POTENTIAL SPILLS – PREDICTION OF VOUME OR RATE AND DIRECTION OF FLOW

Source	Spill	Maximum Spill Volume	Spill Direction	Containment Provisions
Storage tank	Collapse/rupture		Gravity flow to nearest culverts or inlets; see Appendix C	Secondary containment
Storage tank	Overfill	6,000 gallons (truck)*	Gravity flow to nearest culverts or inlets; see Appendix C	Spill kit on truck with absorbent pads
Pipeline	Line rupture	Varies depending on pumping rate and line capacity	Depends on location	First response outside containment areas will include but not be limited to the use of vacuum pumps and booms to contain oil for recovery. Oil/debris which is not recoverable will be collected and disposed as oily wastes.
Loading/ unloading area	Spill	6,000 gallons (truck)*	Depends on location	Spill kit on truck with absorbent pads

Note: gpm = gallons per minute

*Largest single compartment in a tanker truck.

4.0 AST DESIGN AND OPERATING PROVISIONS

4.1. REFERENCES

- 40 CFR 112.
- Chapter 62-761, F.A.C.

4.2. POTENTIAL CAUSES OF SPILL OR RELEASE

Accidental releases of petroleum can contaminate storm water, soils, and ground water and could result in a *harmful quantity* discharge to navigable water if released from secondary containment. Improper connections to tank trucks or overfilling during oil transfers may also result in significant losses of oil requiring immediate response. ASTs, transfer lines, flanges, and valves must be inspected to identify signs of corrosion, wear, and other damage that, if left uncorrected, could result in an oil release. Because of the proximity of the tanks and transfer lines to navigable water, sustained emphasis should be placed on these spill prevention measures as a means to limit environmental liability, rather than reliance on oil spill response mechanisms.

4.3. AST DESIGN PROVISIONS

4.3.1 NEW AST TANK CONSTRUCTION

New storage tank systems (i.e., installed after July 1996) with capacities above 550 gallons will be lined with materials that are compatible with the substance being stored in the system. All new tanks shall meet or exceed the design and construction standards referenced in Section 62-761.500(3), F.A.C., unless FDEP approval has been received for alternative construction materials (Section 62-761.850, F.A.C.). All new ASTs shall be installed in accordance with manufacturers specifications, meet corrosion compatibility requirements, and have secondary containment installed as described in FDEP rules and summarized in Section 4.3.2.

New ASTs shall be supported on a well drained stable foundation which prevents movement, rolling, or structurally unacceptable settling of the tank, which is designed to minimize corrosion of the tank bottom. The AST design features shall include the requirements for cathodic protection of tank bottom (Rule 62-761.500(3)(b)(4), F.A.C.), exterior coating (Chapter 62-761.500(3)(b)(5)), and overfill protection (Rule 62-761.500(3)(d), F.A.C.). It is highly recommended that a concrete vaulted tank be installed for new ASTs coming on line. These concrete encased tanks provide secondary containment and overfill/overspill protection. The vaulted tank must be supported on an engineered concrete slab. Before siting a new vailted tank, provisions must be made to check the site for a previous UST that may have been removed, to ensure that proper soil compaction was performed at the time of the removal.

4.3.1.1 Exemptions

FDEP regulations provide certain exemptions to ASTs storing regulated substances (Rule 62-761.300(2), F.A.C.). However, the federal SPCC regulations do not recognize many of these exemptions. A review of these rules is advised prior to applying these construction standards to a specific situation involving AST design.

4.3.2 NEW SECONDARY CONTAINMENT

ASTs shall be provided with a secondary containment wall or berm sufficient for 110 percent of the contents of the largest single tank in containment. The containment area must be sufficiently impervious, using epoxy-coated concrete, steel, or other materials, to contain spilled oil until emergency responders can arrive. The containment area shall be designed and installed to direct any release to a monitoring point or points or a treatment system if necessary. Secondary containment liners shall meet the FDEP requirements for synthetic liners, concrete liners, or clay-based composite products and off-site natural clays (Rule 62-761.500(3)(e), F.A.C.). Secondary containment shall also be designed to meet or exceed the requirements of National Fire Protection Association Standard Number 30, Chapter 2-2.3.

If not roofed or otherwise protected from the accumulation of rainfall, containment shall be equipped with a manually controlled pump or siphon, or a gravity drain pipe which has a manually controlled valve to remove the storm water from containment. All valves must be kept in a closed position and remain locked except during draining operations. The opening and closing of the valves must be performed under responsible supervision and adequate records must be kept of such events

All piping passing through secondary containment walls shall be sealed around the outside of the piping to prevent the discharge of storm water prior to inspection.

4.3.2.1 Exemptions

The following AST types may be exempt from secondary containment requirements: (1) an AST that is contained in an enclosed concrete vault; (2) the AST is a double wall tank; or (3) the AST is used to contain a heavy fuel oil such as American Society of Testing and Materials (ASTM) grades 5 or 6 residual oils, intermediate fuel oils with a viscosity of 30 or higher, or Bunker C.

4.3.3 NEW TRANSFER PIPING CONSTRUCTION

New piping shall meet the FDEP standards contained in Rule 62-761.500(4), F.A.C., and the federal SPCC requirements for pipelines and supports (40 CFR 112.7(e)(3)).

Buried pipelines in contact with soil shall be equipped with secondary containment in accordance with Rule 62-761.500(4), F.A.C. An interstitial monitoring method capable of detecting a discharge from integral piping shall be provided, and the release detection system will be monitored monthly. Release detection for piping which passes under roadways or similar obstacles is located at the nearest practical location to the source.

Pipelines, when out-of-service for 6 months or more, will be blank-flanged and marked as to origin. Where aboveground piping is located close to roadways, appropriate signs are placed to warn vehicle operators of their presence. Where applicable, weight restrictions will be posted to prevent damage to underground piping.

4.3.3.1 Exemptions

Integral piping containing heavy fuel oil such as ASTM grades 5 or 6 residual oils, intermediate fuel oils with a viscosity of 30 or higher, or Bunker C are exempt from the secondary containment requirement for pipes in contact with the soil. A cathodic wrapping is recommended.

4.3.4 FACILITY TRANSFER OPERATIONS

All product loading areas where tank filling connections are made with vehicles shall be equipped with a secondary containment system or other spill containment equipment of sufficient volume to prevent the discharge of the product contained in the transfer hose when it is detached from the tank. Where rack drainage does not flow into a catchment basin or treatment facility designed to handle spills, the containment system should be designed to at least hold the capacity of the largest compartment of the tank truck offloading oil.

4.3.5 EXISTING AST SYSTEMS

Steel, fiberglass and epoxy-sealed concrete tanks are used at CCAFS which are compatible with the material stored under its pressure and temperature conditions.

Secondary containment structures used for ASTs at CCAFS include steel-reinforced concrete which are sealed with epoxy coating to prevent leaks. Discharge from the secondary containment areas is controlled by a manually operated valve equipped with a locking device. The valve is locked in the closed position when not in use.

Fuel is transferred between a tanker truck and the AST through aboveground connections. Connections are capped with a blank flange when not in use. Any leakage from the transfer pipe will drain into the AST containment area, except for the smaller unregulated tanks where containment is not provided. All permanent stationary petroleum storage tanks at CCAFS have secondary containment for the tank and fill connection piping or have a spill box mounted at the transfer point.

4.3.6 EXISTING AST SYSTEM IMPROVEMENTS

Sections 62-761.510 F.A.C., contain a schedule of compliance for existing tanks to be upgraded to new tank standards. In addition to the design and construction standards described or referenced in Section 4.3.1 to 4.3.4, FDEP rules specify that AST systems which are found to have discharged petroleum must not be used until the faulty system component is repaired or replaced (exception: removal of the AST system from service would shut down electrical generating units). Secondary containment systems are required to undergo repairs as needed to maintain product tightness and containment volume, including sealing cracks in concrete, repairing punctures, and maintaining walls.

CCAFS has an ongoing program to ensure that the existing facilities meet the current federal, state, and Air Force standards. Priority will be given to those areas of repair or maintenance needed to containment systems and other first lines-of-defense to prevent impacts, and to areas which until repaired cause the system to be deficient with regulatory standards. Appendix D contains checklists and procedures identified in CCAFS's program. An updated list of maintenance items will be kept by the tank custodian.

4.4. AST OPERATING PROCEDURES

4.4.1 DRAINAGE CONTROLS

Drainage from contained areas is restrained by valves. If the AST operator detects the presence of oil in the accumulated water, appropriate testing and cleanup procedures will be completed prior to discharge. Valves used for drainage of containment areas are of manual, open-and-close design and are kept in the closed position to allow for the inspection of rainwater prior to its release.

The diked containment area will be visually inspected for excess rainwater following storm events. Inspection of the accumulated rainwater will detect a need for AST maintenance or other response to prevent a major oil release. Storm water that collects within the secondary containment system will be drawn off by evaporation, or if needed, manual release within 1 week of each rainfall event. A record will be made of all uncontaminated storm water discharges from a containment area to an outfall or other tributary leading to the Banana River. A record will be maintained for all discharges regardless of whether it is near an outfall. A copy of the storm water release form is included in Appendix D.

4.4.2 TANK TRUCK UNLOADING PROCEDURE

Appendix E contains a copy of the fuel transfer checklist. Prior to tank filling, the site operator will ensure that the volume available in the tank is greater than the volume of product to be transferred to the tank. Prior to the filling and departure of any tank truck, the lowermost drain and all outlets of the vehicle will be closely examined for leakage and, if necessary, tightened, adjusted, or replaced to prevent the release of oil while the truck is in transit. A warning sign is used to prevent vehicular departure before complete disconnection of flexible or fixed transfer lines.

The fuel oil storage tank is equipped with a gauge which accurately shows the level of oil in the tank and is visible to the person who is monitoring the tank filling. Manual tank gauging may be used in lieu of gauges for tanks with a capacity of 5,000 gallons or less which are not loaded with high-volume, pressurized nozzles. ASTs where manual tank gauging is used shall not be loaded beyond 90 percent capacity.

4.4.3 INSPECTIONS

Aboveground tank, piping, and supports are subject to monthly visual inspection by operating personnel to detect evidence of system leaks, spills, or deterioration. Visible oil leaks which result in a loss of oil from tank seams, gaskets, rivets, and bolts will be promptly corrected. In-line valves on either side of the faulty equipment will be closed prior to repair, and oil collected from the isolated part of the system will be collected in drums. Records of any necessary integrity testing will be kept for future comparison. Appendix E contains a copy of the monthly AST inspection checklist.

Facility manager/building custodian will check oil-water separators according to their schedule to ensure that oil does not escape to waters of the State. Numerous contractors at CCAFS are responsible for maintaining oil water separators. Each organization has their own inspection and maintenance schedule for the upkeep of these units. Most of the oil water separators at CCAFS are located at the pump stations.

5.0 UST DESIGN AND OPERATING PROVISIONS

5.1. REFERENCES

- 40 CFR 112
- 40 CFR 280
- Chapter 62-761, F.A.C.

5.2. POTENTIAL CAUSES OF CHEMICAL SPILL OR RELEASE

The primary causes of unauthorized discharges from USTs are corrosion, poor installation, and poor operating practices such as tank overfilling or tank puncture with the dipstick during fuel gauging. Because a UST leak is not typically observed from the ground surface, the federal and state regulations specify procedures and equipment for leak detection to allow a timely response to a UST discharge. The primary leak prevention and control measures for USTs include: (1) construction and installation standards; (2) operating requirements; and (3) leak detection methods.

5.3. UST DESIGN PROVISIONS

5.3.1 NEW UST TANK CONSTRUCTION

Due to the increased environmental concern and the ever-increasing regulation of UST facilities, it is recommended as a matter of policy that all future storage tank systems be designed for and constructed aboveground unless site-specific conditions require underground installation (45 SW OPLAN 19-14). Existing UST systems must eventually meet certain new tank performance standards or be closed. *New tanks* are those installed after June 30, 1992 (Section 62-761.500, F.A.C.).

A summary description of the UST system requirements is provided in the following paragraphs (Section 62-761.500, F.A.C.):

- **Materials of Construction**—All new tanks shall be constructed of fiberglass-reinforced plastic, cathodically-coated protected steel, steel coated with a fiberglass-reinforced plastic composite, or any other corrosion protected material or design determined by FDEP to prevent a discharge of regulated substance. The UST must be constructed according to referenced standards.

- **Secondary Containment**—All new tanks shall have secondary containment. Concrete or synthetic liners used for containment must meet the standards provided in Rule 62-761.500(1)(e), F.A.C., and must discharge to a monitoring point.
- **Integral Piping**—Integral piping in contact with the soil shall have secondary containment meeting FDEP's construction and installation requirements. Interstitial monitoring of the piping is required. A tightness test shall be conducted on the tank and integral piping before use.
- **Dispensers**—Liners shall be installed directly beneath dispensers at the terminus of the integral piping to contain discharges caused by dispenser maintenance. The liners shall allow for periodic inspection for (and removal of) product.
- **Siting**—No new tank system shall be installed within 50 ft of any existing potable supply well. This prohibition does not apply to the replacement of an existing tank with the same capacity (or less) that has secondary containment.

5.3.1.1 Exemptions

FDEP regulations provide certain exemptions to USTs storing regulated substances (Rule 62-761.300(2), F.A.C.). These exemptions should be consulted before applying the new tank system standards to a specific installation or upgrade.

5.3.2 RELEASE DETECTION STANDARDS

All storage tank systems shall be provided with a method, or combination of methods, of release detection that can detect a discharge from a tank or integral piping which shows a significant increase in contamination levels above background.

The release detection standards for new and existing UST systems are provided in Sections 62-761.600 and 761.640, F.A.C. Release detection methods include, in general, interstitial leak detection systems between walls of a double-walled tank; monitoring wells installed within a UST liner; continuously operating release detection system placed around a tank in an excavation; or, network of at least two monitoring wells within the excavation of a single tank of 2,000-gallon or less, or four monitoring wells for a multiple tank excavation or a single tank greater than 2,000-gallon capacity.

5.3.2.1 Exemption

A storage tank system that stores fuel solely for use by emergency power generators is not subject to release detection standards (Rule 62-761.600(2)(c), F.A.C.).

5.3.3 EXISTING UST SYSTEMS

The mogas tanks at Hangar Y and the main vehicle fueling station in the Industrial Area were installed in 1985-86 and have received significant upgrades. Fuel oil and other USTs located throughout CCAFS are scheduled for (or have undergone) upgrade, removal or replacement with new tank systems. The FDEP schedules for meeting new tank system requirements are outlined in Section 62-761.510, F.A.C. A summary of key compliance dates for existing USTs is summarized in Section 62-761.510(2)(d), F.A.C.

UST systems that do not comply with the applicable standards by the dates listed must be taken out-of-service and properly closed. In addition to the design and construction standards described or referenced in Section 62-761.500, F.A.C., FDEP rules specify that USTs systems which are found to have discharged petroleum (according to Section 62-761.820, F.A.C.) must be closed until the faulty system component is repaired or replaced.

5.3.4 FACILITY IMPROVEMENTS

CCAFS has an ongoing program to ensure that the existing facilities meet the current federal, state, and Air Force standards. Priority will be given to those areas of repair or maintenance needed to prevent impacts and to comply with regulatory standards. Appendix D contains checklists and procedures for CCAFS's program. An updated list of needed facility improvements will be kept by the tank custodian.

5.4. UST OPERATING PROVISIONS

5.4.1 PRODUCT INVENTORY

Operators of UST tanks shall maintain inventory records for each tank that contains vehicular fuel. Inventory records shall be reconciled weekly (Section 62-761.710(2), F.A.C.).

5.4.1.1 Exemption

Tanks equipped with secondary containment are exempt from vehicular fuel inventory requirements.

5.4.2 INSPECTIONS

All UST systems equipped with any type of cathodic protection must be inspected and tested by a corrosion professional or a cathodic protection tester within 6 months of installation and at least every 3 years thereafter, in accordance with the criteria contained in National Association of Corrosion Engineers (NACE) Standard RP-0285-85.

All UST systems equipped with impressed current cathodic protection shall be inspected every 60 days to ensure the cathodic protection is functioning properly.

Routine inspections will be made of monitoring wells and other devices used for release detection. Appendix E contains a copy of the form used to record such inspections.

6.0 ADMINISTRATIVE PROVISIONS

6.1. RECORDKEEPING

ASTs that are subject to the Chapter 62-761, F.A.C., requirements will be inspected monthly. A record of those inspections shall be maintained by the tank custodian for 3 years. In addition, records will be kept for the following:

- Results of monitoring of release detection systems.
- Results of external maintenance examinations of storage tank systems in accordance with Rule 62-762.710, F.A.C.
- Results of all integrity testing and tightness tests for integral piping.
- Descriptions and dates of storage system repair.

FDEP recordkeeping requirements for USTs and ASTs are described in Sections 62-761.710, F.A.C. These records will be kept for at least 3 years as part of the SPCC plan documentation. An exception to this is the release detection performance claims and records of major repairs made to tank systems, which should be maintained for the life of the tank system.

6.2. TRAINING

Spill prevention briefings are conducted for operating personnel to assure an adequate understanding of the provisions of this SPCC plan. These briefings will highlight and describe known spill events or failures, malfunctioning components, and recently developed precautionary measures.

6.3. SECURITY

The entire 15,804-acre station is fenced, and entrance gates are locked or guarded 24 hours per day. Facility lighting is adequate to detect spills or leaks occurring at night. Control valves and pumps are locked or are otherwise made accessible only to authorized personnel.

6.4. SPCC PLAN REVISIONS

The SPCC plan will be reviewed, revised, and recertified by a Registered Professional Engineer at least once every 3 years or whenever there is a change in facility operation or maintenance practices which materially affects the potential for discharging oil into a navigable waterway. The plan will be reviewed and amended as necessary between 3-year updates in the event of the following:

- When applicable regulations are revised.
- A single spill event occurs during which more than 1,000 gallons of oil reaches navigable waters.

Figure 6-1 is the Record of Changes form to track SPCC plan revisions. 45 CES/CE is the key contact for plan maintenance.

FIGURE 6-1, RECORD OF CHANGES

Record of Changes		Revision No: 003
Change	Location	Revision Date
Cover page.	ESC replaced ECT as the reviewer	09/04/01
Total document change.	CCAS replaced with CCAFS	09/04/01
Number of ASTs and USTs updated to reflect current operating tanks.	Page 9, Section 2.3	09/04/01
Tank size range changed from 16,000 to 10,000 gallons and from 4,000 to 2,000 gallons.	Page 12, Section 2.3.1.2	09/04/01
Mention made that boilers were converted to natural gas.	Page 12, Section 2.3.1.2	09/04/01
The number of UST systems on the installation was updated to reflect current operating conditions. The capacity on the UST's changed from a range of 275-2,000 to 275-10,000 gallons.	Page 14, Section 2.3.2	09/04/01
The number of ASTs owned by NASA was updated was reflected to show current operating conditions.	Page 14, Section 2.3.3	09/04/01
Reference to page FRP-35 of OPLAN 32-3 Volume IIIA was updated to reflect the current location of the information on page FRP-37.	Page 15, Section 2.4	09/04/01
Table 2-1 was added to reflect up to date spill history.	Page 16	09/04/01
Table 3-1 was updated to reflect the current facility number of the sand blasting/paint shop.	Page 29	09/04/01
Table 3-2 was updated to reflect current capacity of fueling trucks.	Page 33	09/04/01
The word oil was replaced with the word fuel.	Page 38, Section 4.3.5	09/04/01
The last paragraph in this section was dropped due to duplication earlier in the document.	Page 44, Section 5.3.3	09/04/01
Appendix A was updated to reflect the current list of petroleum storage tanks on CCAFS. Additionally, location maps were updated to include recent tank installations, removals, and abandonments.	Appendix A	09/04/01
Appendix B contains the current SPCC for NASA petroleum tanks at FSA #1.	Appendix B	09/04/01

APPENDIX A—INVENTORY AND LOCATION OF PETROLEUM STORAGE FACILITIES

Petroleum Storage Tanks at CCAFS
7 March 2001

Facility	Area	Facility Desc	Account	User	Status	Tank Type	Regulated	Material	Contents	Volume (gals)	Purpose	Installed
C0006-4	MAL	POWER HOUSE (MTA)	AF	SGS	In Service	AST	YES	VAULTED	DF-2	6000	EMER. GEN	2000
01044-2	6	FSA 1	NASA	SGS	In Service	UST	YES	DBL WALL FBGL	HYDROCARB/H2O	2500	STORAGE	1990
01069-1	8	PORT MAINT	AF	SGS	In Service	AST	NO	STEEL	MOGAS	250	VEH. FUEL	1991
01605-1	3a	Motion Picture Lab	AF	SGS	Unmaintained	AST	NO	VAULTED	DF-2	2000	BOILER	1999
01660-2	2	PUMP STA 4	AF	SVER	In Service	AST	NO	VAULTED	DF-2	550	EMER. GEN	2000
01660-3	2	PUMP STA 4	AF	SVER	In Service	AST	NO	STEEL	DF-2	100	DAY TANK	0
01660C	2	PUMP STA 4	AF	SVER	In Service	AST	YES	STEEL	DF-2	8000	EMER.GEN	1989
01660D	2	PUMP STA 4	AF	SVER	In Service	AST	NO	STEEL	USED OIL	300	O/W Separator	1995
01708-5	3a	HGR R&D	AF	SGS	In Service	AST	NO	STEEL	DF-2	300	EMERG. GEN.	1999
01724-3	3a	PHYS STDS LAB	AF	SGS	In Service	AST	NO	STEEL	DF-2	1500	BOILER	1991
01726-3	3a	HGR S	NASA	SGS	Unmaintained	AST	NO	STEEL	DF-2	500	BOILER	1984
01728E	3a	HGR N	NASA	SGS	Out Of Service	AST	NO	STEEL	DF-2	4000	BOILER	1986
01731-2	3a	HGR M	NASA	MDAC	AIP	UST	NO	STEEL	WASTE OIL	280	O/W Separator	1956
01731-3	3a	HGR M	NASA	MDAC	AIP	UST	NO	STEEL	WASTE OIL	280	O/W Separator	1956
01732-1	3a	HGR L	NASA	SGS	In Service	AST	NO	STEEL	DF-2	300	GENERATOR	1957
01744-4	3a	HGR U	AF	SGS	In Service	AST	YES	STEEL	USED OIL	1000	VEH. MAINT.	1992
01748-4	3a	Cape Cafeteria	AF	SGS	Unmaintained	AST	NO	VAULTED	DF-2	2000	BOILER	1997
03100-1	4	CX 46	AF	LOCMAR	In Service	AST	NO	STEEL	HYDRAULIC OIL	75	ERECTORS	1990
03100-2	4	CX 46	AF	LOCMAR	In Service	AST	NO	STEEL	HYDRAULIC OIL	280	ERECTORS	1985
03100-3	4	CX 46	AF	LOCMAR	Unmaintained	AST	NO	STEEL	HYDRAULIC OIL	280	TESTING	0
05502-1	4	CX 36 Guard House	AF	SGS	In Service	AST	NO	STEEL	DF-2	150	EMER. GEN.	1991

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Facility	Area	Facility Desc	Account	User	Status	Tank Type	Regulated	Material	Contents	Volume (gals)	Purpose	Installed
05502-2	4	CX 36 Guard House	AF	SGS	In Service	AST	NO	STEEL	DF-2	15	DAY TANK	0
05521-1	4	CX 36 PAD B	AF	LOCMAR	In Service	UST	NO	STEEL	WASTE OILS	65	COMPRESSORS	1964
05521-2	4	CX 36 PAD B	AF	LOCMAR	In Service	UST	NO	STEEL	WASTE OILS	65	COMPRESSORS	1964
05521-3	4	CX 36 PAD B	AF	LOCMAR	In Service	AST	NO	STEEL	DF-2	550	EMER.GEN	0
5528	4	CX 36 PAD A	AF	LOCMAR	In Service	AST	YES	STEEL	RP-1	28000	RP-1 STORAGE	1996
5532	4	CX 36 PAD A	AF	LOCMAR	In Service	AST	NO	STEEL	DF-2	550	EMER.GEN	0
05541-1	4	CX 36 PAD B	LOCMAR	LOCMAR	In Service	AST	YES	STEEL	RP-1	28000	RP-1 STORAGE	1998
10913-2	2	CX 14	AF	JC	Unmaintained	UST	NO	STEEL	DF-2	550	BOILER	1959
17323	3a	HGR L	NASA	SGS	Out Of Service	UST	YES	STEEL	DF-2	1000	INCINERATOR	1982
27206-1	5	LOCC GUARD HOUSE	AF	SGS	In Service	AST	NO	STEEL	DF-2	150	EMER. GEN	0
28002-1	JDMTA	POWERHOUSE	AF	SGS	In Service	AST	NO	STEEL	DF-2	250	DAY TANK	0
28002-2	JDMT	POWERHOUSE	AF	SGS	In Service	AST	NO	STEEL	DF-2	250	DAY TANK	0
28002-3	JDMT	POWERHOUSE	AF	SGS	In Service	AST	NO	STEEL	DF-2	250	DAY TANK	0
28002-4	JDMT	POWERHOUSE	AF	SGS	In Service	AST	NO	STEEL	DF-2	250	DAY TANK	0
28002-5	JDMT	POWERHOUSE	AF	SGS	In Service	AST	NO	STEEL	DF-2	250	DAY TANK	0
28002-6	JDMT	POWERHOUSE	AF	SGS	In Service	AST	NO	STEEL	DF-2	250	DAY TANK	0
28002B	JDMT	POWERHOUSE	AF	SGS	AIP	UST	YES	FIBER GLAS	DF-2	12000	EMER.GEN	1985
28002C	JDMT	POWERHOUSE	AF	SGS	AIP	UST	YES	FIBER GLAS	DF-2	12000	EMER.GEN	1985
28002D	JDMT	POWERHOUSE	AF	SGS	In Service	AST	YES	VAULTED	DF-2	10000	EMER.GEN	1997
28406-1	5	CX 17/PAD A	AF	BOEING	In Service	AST	YES	STEEL	RP1	6500	DELTA Propulsion	1966

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Facility	Area	Facility Desc	Account	User	Status	Tank Type	Regulated	Material	Contents	Volume (gals)	Purpose	Installed
28406-2	5	CX 17/PAD A	AF	BOEING	In Service	AST	YES	STEEL	RP1	6500	DELTA Propulsion	1966
28503-1	5	CX 17/PAD B	AF	BOEING	In Service	AST	YES	STEEL	RP-1	6500	DELTA Propulsion	1966
28503-2	5	CX 17/PAD B	AF	BOEING	In Service	AST	YES	STEEL	RP-1	6500	DELTA propulsion	1966
29115-1	1n	CX 41			Unmaintained	AST	NO	VAULTED	DF-2	1000	EMER.GEN	1997
29130-3	1n	CX 19			Unmaintained	AST	NO	VAULTED	DF-2	2000	EMER.GEN	1997
29145-3	1n	CX 41 READY	AF	LOCMAR	In Service	AST	NO	VAULTED	DF-2	250	BOILER	1997
29145-4	1n	CX 41 Guard Shack	AF	LOCMAR	Unmaintained	AST	NO	STEEL	DF-2	50	DAY TANK	0
29150-10	1n	PS 7	AF	SVER	In Service	AST	NO	STEEL	DF-2	275	PUMP FUEL	1964
29150-11	1n	PS 7	AF	SVER	In Service	AST	NO	STEEL	DF-2	275	PUMP FUEL	1964
29150-12	1n	PS 7	AF	SVER	In Service	AST	NO	VAULTED	USED OIL	300	O/W Separator	1997
29150-5	1n	PS 7	AF	SVER	In Service	AST	NO	STEEL	DF-2	100	PUMP FUEL	1964
29150-6	1n	PS 7	AF	SVER	In Service	AST	NO	STEEL	DF-2	275	PUMP FUEL	1964
29150-7	1n	PS 7	AF	SVER	In Service	AST	NO	STEEL	DF-2	275	PUMP FUEL	1964
29150-8	1n	PS 7	AF	SVER	In Service	AST	NO	STEEL	DF-2	275	PUMP FUEL	1964
29150-9	1n	PS 7	AF	SVER	In Service	AST	NO	STEEL	DF-2	275	PUMP FUEL	1964
29155-3	1N	PS 7	AF	SVER	In Service	AST	YES	VAULTED	DF-2	10000	EMER.GEN	1997
33000	1	CX 37	NASA	EG&G	In Service	AST	NO	STEEL	HYDRAULIC OIL	500	FOR ELEVATOR	1991
34716	3a	TSF GENERATOR BLDG.	AF	LOCMAR	In Service	AST	NO	STEEL	DF-2	150	DAY TANK	1996
34717	3a	TSF MECHANICAL BLDG.	AF	LOCMAR	In Service	AST	YES	STEEL	DF-2	2500	OILER/EMERG. GE	1991
38808-2	3	CPF	AF	BOEING	In Service	AST	NO	STEEL	DF-2	300	OSB GEN.	0
38808-3	3	CPF	AF	BOEING	In Service	AST	NO	STEEL	DF-2	100	DAY TANK	0

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Facility	Area	Facility Desc	Account	User	Status	Tank Type	Regulated	Material	Contents	Volume (gals)	Purpose	Installed
38810-2	3	CPF	AF	BOEING	In Service	AST	NO	STEEL	DF-2	300	CTC GEN.	0
38813-1	3	CPF	AF	BOEING	In Service	AST	NO	VAULTED	DF	280	VEHICLE FUELING	2000
38813-2	3	CPF	AF	BOEING	In Service	AST	NO	VAULTED	GASOLINE	500	VEHICLE FUELING	2000
38830-1	3	CPF	AF	BOEING	In Service	AST	NO	STEEL	DF-2	300	H2O PUMP GEN.	0
38833-1	3	CPF	AF	BOEING	In Service	AST	NO	STEEL	DF-2	500	CPB GEN.	0
38833-2	3	CPF	AF	BOEING	In Service	AST	NO	STEEL	DF-2	500	CPB GEN.	0
38833-3	3	CPF	AF	BOEING	In Service	AST	NO	STEEL	DF-2	100	DAY TANK	0
38833-4	3	CPF	AF	BOEING	In Service	AST	NO	STEEL	DF-2	150	DAY TANK	0
39765	3	GPS ANTENNA	AF	AF	In Service	AST	NO	STEEL	DF-2	110	GENERATOR	0
40431	5	GET AWAY SPECIAL	AF	NASA	AIP	AST	NO	STEEL	DF-2	80	BOILER	1963
40431-1	5	GET AWAY SPECIAL	AF	NASA	AIP	AST	NO	STEEL	DF-2	500	BOILER	1963
40906-B	5	PUMP STA 1	AF	SVER	In Service	AST	NO	STEEL	USED OIL	300	STORAGE	0
40906A-1	5	PUMP STA 1	AF	SVER	In Service	AST	YES	STEEL	DF-2	7500	EMER.GEN	1958
40906A-3	5	PUMP STA 1	AF	SVER	In Service	AST	NO	STEEL	DF-2	100	DAY TANK	0
44426-2	3a	UPS-RCC	AF	SGS	In Service	AST	YES	STEEL	DF-2	1000	EMER.GEN	1991
44426-3	3a	UPS-RCC	AF	SGS	In Service	AST	NO	STEEL	DF-2	15	DAY TANK-north	0
44426-4	3a	UPS-RCC	AF	SGS	In Service	AST	NO	STEEL	DF-2	90	DAY TANK-south	0
44509	3a	VEH FUEL STA	AF	UP	In Service	UST	YES	FIBER GLAS	MOGAS	10000	STORAGE	1986
44514	3a	VEH FUEL STA	AF	UP	In Service	UST	YES	FIBER GLAS	DF-2	15000	STORAGE	1988
44515	3a	VEH FUEL STA	AF	UP	In Service	UST	YES	FIBER GLAS	MOGAS	6000	STORAGE	1986
44625-1	3a	GEN. SHOP	AF	SGS	Out Of Service	AST	NO	STEEL	DF-2	285	BOILER	1999
44625C-2	3a	GEN. SHOP	AF	SGS	In Service	AST	NO	STEEL	USED OIL	110	o/w SEP. EFF.	1992

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Facility	Area	Facility Desc	Account	User	Status	Tank Type	Regulated	Material	Contents	Volume (gals)	Purpose	Installed
4462.5	3a	GEN. SHOP	AF	SGS	In Service	AST	YES	STEEL	USED OIL	2000	STORAGE	1994
446.25	3a	GEN. SHOP	AF	SGS	In Service	AST	NO	STEEL	USED OIL	500	STORAGE	1994
47115-3	1	CX 40	AF	SVER	In Service	AST	YES	VAULTED	DF-2	10000	EMER.GEN	1997
47127-3	1	CX 40	AF	LOCMAR	In Service	AST	NO	VAULTED	DF-2	250	EMER.GEN	1997
47127-4	1	CX 40	AF	LOCMAR	In Service	AST	NO	STEEL	DF-2	40	DAY TANK	0
49509	3a	HGR U	AF	SGS	In Service	AST	NO	STEEL	USED OIL	300	OIL/H2O SEP.	1992
49635	3a	DISPENSARY	NASA	SGS	In Service	AST	NO	STEEL	DF-2	300	EMER. GEN	0
49641A-1	3a	UPS-CCC	AF	SGS	In Service	AST	NO	STEEL	DF-2	500	EMER.GEN	1968
49641A-2	3a	UPS-CCC	AF	SGS	In Service	AST	YES	STEEL	DF-2	750	EMER.GEN	1991
49641A-3	3a	UPS-CCC	AF	SGS	In Service	AST	NO	STEEL	DF-2	90	DAY TANK-east	0
49641A-4	3a	UPS-CCC	AF	SGS	In Service	AST	NO	STEEL	DF-2	90	DAY TANK-middle	0
49641A-5	3a	UPS-CCC	AF	SGS	In Service	AST	NO	STEEL	DF-2	30	DAY TANK-west	0
49641A-6	3a	UPS-CCC	AF	SGS	In Service	AST	NO	STEEL	DF-2	30	DAY TANK-unreg.	0
49750-3	3a	ALT CENTRAL SECURITY	AF	SGS	In Service	AST	NO	VAULTED	DF-2	550	EMERG. GEN	1999
49750-4	3a	ALT CENTRAL SECURITY	AF	SGS	In Service	AST	NO	STEEL	DF-2	110	DAY TANK-upper	1999
49750-5	3a	ALT CENTRAL SECURITY	AF	SGS	In Service	AST	NO	STEEL	DF-2	40	DAY TANK-lower	1999
49835	3a	HEAVY EQUIP SHOP	AF	SGS	In Service	AST	YES	STEEL	USED OIL	1000	USED OIL	1990
49918-2	3a	SATELLITE EARTH STAT	GE	AMERICOM	In Service	AST	YES	STEEL	DF-2	1000	EMER.GEN	1993
51906-1	7	CX 25	AF	SGS	In Service	AST	NO	CONVAULT	DF-2	500	EMER.GEN	1996
54732	3a	WASTEWATER PLANT	AF	SGS	In Service	AST	NO	VAULTED	DF-2	500	EMER. GEN	1991

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Facility	Area	Facility Desc	Account	User	Status	Tank Type	Regulated	Material	Contents	Volume (gals)	Purpose	Installed
55005A	3a	HGR M ANNEX	NASA	SGS	Unmaintained	AST	NO	STEEL	DF-2	4000	BOILER	1986
55810-2	5	NPF (AREA 59)	AF	SVER	AIP	UST	NO	STEEL	DF-2	2000	BOILER	1963
55826	6	DPF (AREA 59)	AF	SVER	In Service	AST	YES	STEEL	DF-2	4000	BOILER	1992
55826-1	6	DPF (AREA 59)	AF	SVER	In Service	AST	NO	STEEL	DF-2	330	DAY TANK	1992
55851	6	SENTRY HOUSE (AREA 59)	AF	SGS	In Service	AST	NO	STEEL	DF-2	280	EMER GEN	1992
56626	6	DELTA SUPPORT Area 55	AF	MDAC	In Service	AST	NO	STEEL	GASOLINE	550	VEH. FUEL	1987
56940-3	6	CX 30	AF	NAVY	AIP	UST	NO	CONCRETE	N/A	250	CONTAINMENT	1960
56940-4	6	CX 30	AF	NOTU	AIP	UST	NO	STEEL	DF-2	1000	BOILER	1960
57512-1	7	MACA/AQ	AF	NAVY	In Service	AST	NO	STEEL	DF-2	500	COMPRESSOR	1994
57515	7	FIRE WATER PUMPS	AF	SGS	In Service	AST	NO	STEEL	DF-2	300	GENERATOR	1985
60680-2	3a	AE BLDG	NASA	SGS	In Service	AST	NO	STEEL	DF-2	550	GENERATOR	1968
60690	3a	AE BLDG	NASA	SGS	Unmaintained	AST	NO	STEEL	DF-2	3000	BOILER	1988
60701-1	3a	CENTRAL SEC. CONTROL	AF	SGS	In Service	AST	NO	VAULTED	DF-2	550	EMER. GEN	1999
60701-2	3a	CENTRAL SEC. CONTROL	AF	SGS	In Service	AST	NO	STEEL	DF-2	40	DAY TANK-north	1999
60701-3	3a	CENTRAL SEC. CONTROL	AF	SGS	In Service	AST	NO	STEEL	DF-2	30	DAY TANK-south	0
62640-1	7	NOTU VEH WASH	AF	NOTU	In Service	AST	NO	STEEL	USED OIL	275	OIL/H2O SEP.	1997
62708A	7	NOTU VEH FUEL	AF	NOTU	In Service	UST	YES	FBRGLS	DF-2	10000	VEH. FUEL	1985

Petroleum Storage Tanks at CCAFS
7 March 2001

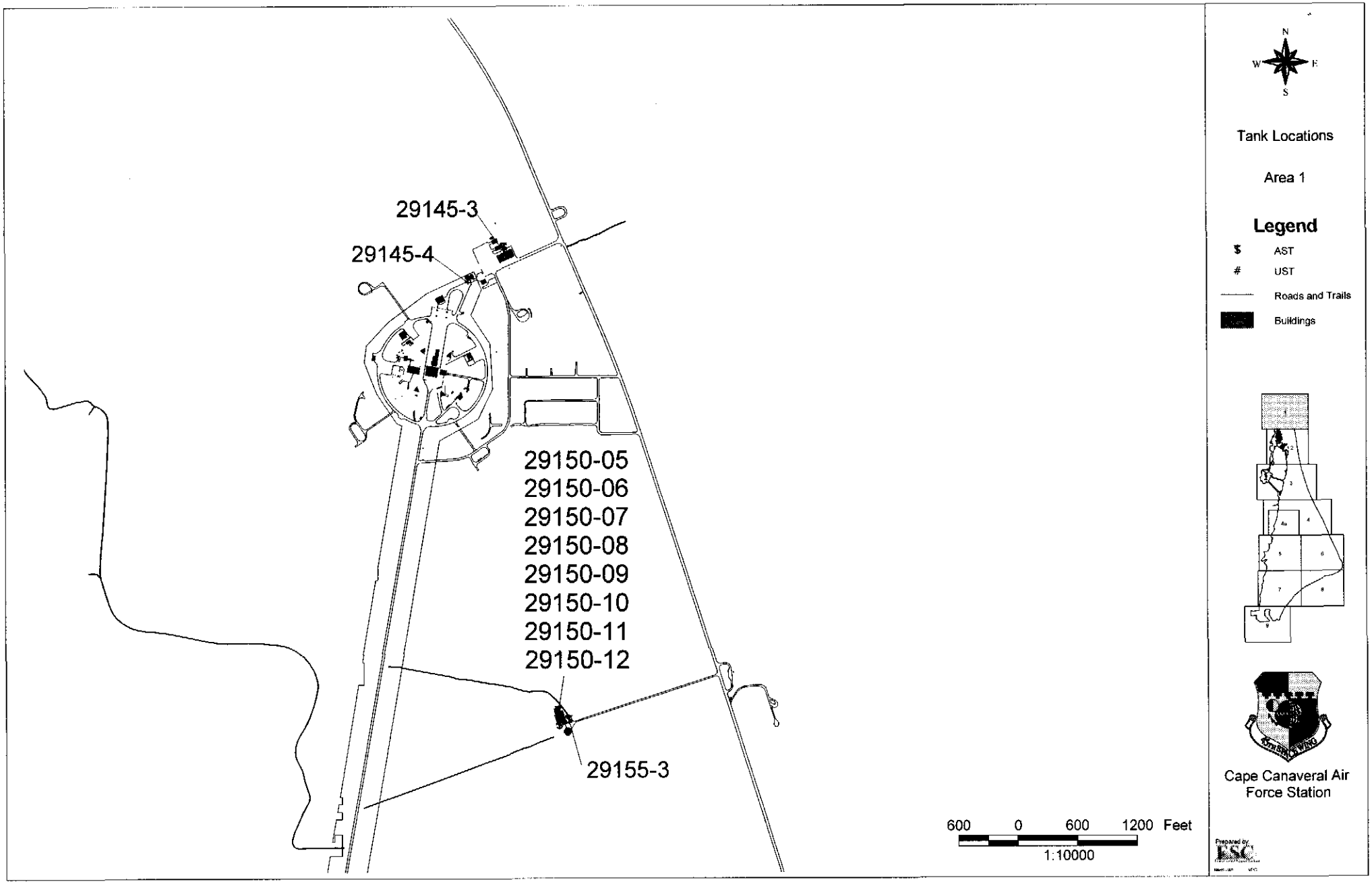
Facility	Area	Facility Desc	Account	User	Status	Tank Type	Regulated	Material	Contents	Volume (gals)	Purpose	Installed
62708B	7	NOTU VEH FUEL	AF	NOTU	In Service	UST	YES	FIBERGLAS	MOGAS	10000	VEH. FUEL	1985
62720A1	7	IWPTP	AF	NOTU	In Service	AST	NO	STEEL	USED OIL	7650	COLLECTION	1995
62720A2	7	IWPTP	AF	NOTU	In Service	AST	NO	STEEL	USED OIL	7650	COLLECTION	1995
62720A3	7	IWPTP	AF	NOTU	In Service	AST	NO	STEEL	USED OIL	260	COLLECTION	1995
66250-1	3a	HGR AF	NASA	USBI	Unmaintained	UST	NO	FIBERGLAS	DF-2	2000	BOILER	1988
66257A	3a	HGR S	NASA	SGS	Unmaintained	AST	NO	STEEL	DF-2	2000	BOILER	1968
67900	6	PSTF	NASA	BOEING	In Service	UST	NO		DF-2	500		0
67901-2	6	PSTF/GUARD HOUSE	NASA	NASA	In Service	AST	NO	STEEL	DF-2	130	EMER.GEN	1991
69800	1w	SMARF	AF	SVER	In Service	AST	NO	STEEL	DF-2	500	EMER. Gen	0
69800-1	1w	SMARF	AF	SVER	In Service	AST	NO	STEEL	DF-2	1500	DAY TANK	0
70000-3	1w	SMAB/SPIF	AF	SVER	In Service	UST	NO	STEEL	DF-2	6000	BOILER	1978
70000-4	1w	SMAB	AF	SVER	In Service	AST	YES	VAULTED	DF-2	8000	EMER. GEN	2001
70000-5	1w	SMAB GEN. TRAILER	AF	SVER	In Service	AST	NO	STEEL	DF-2	1250	DAY TANK	0
70011-1	1W	SMAB SECURITY	AF	SGS	In Service	AST	NO	VAULTED	DF-2	550	EMER.GEN	1997
70011-2	1w	SMAB SECURITY	AF	SGS	In Service	AST	NO	STEEL	DF-2	15	DAY TANK	0
70012-1	1w	SMAB	AF	SVER	In Service	AST	NO	VAULTED	DF-2	2000	BOILER	1997
70460-1	1w	VIB SECURITY	AF	SGS	In Service	AST	NO	VAULTED	DF-2	300	EMER. GEN	1997
70500-4	1w	VIB WESTSIDE	AF	SVER	In Service	AST	NO	VAULTED	DF-2	1000	BOILER	1997
70500-5	1w	VIB EAST SIDE	AF	SVER	In Service	AST	NO	VAULTED	DF-2	1000	BOILER	1997
7050	1w	VIB SOUTH SIDE	AF	SVER	In Service	AST	YES	VAULTED	DF-2	2000	EMER.GEN	1996
705	1w	VIB SOUTH SIDE	AF	SVER	In Service	AST	NO	STEEL	DF-2	150	DAY TANK	2001

Petroleum Storage Tanks at CCAFS
7 March 2001

Facility	Area	Facility Desc	Account	User	Status	Tank Type	Regulated	Material	Contents	Volume (gals)	Purpose	Installed
70520-4	1w	PS 6	AF	SGS	In Service	AST	YES	VAULTED	DF-2	1000	EMER.GEN	1997
70520-5	1w	PS 6	AF	SGS	In Service	AST	NO	STEEL	DF-2	100	DAY TANK	0
70520-6	1w	PS 6	AF	SGS	In Service	AST	NO	STEEL	DF-2	275	Fire Water Pumps	0
70528-1	1w	ITL-POL STORAGE	AF	SVER	In Service	AST	NO	VAULTED	USED OIL	550	STORAGE	1997
72650-1	6	FSA 2	AF	SVER	In Service	UST	NO	STEEL	DF-2	500	BOILER	1960
72665-2	6	FSA 2	AF	SVER	In Service	AST	NO	STEEL	DF-2	280	BOILER	1991
75251-1	1W	MIS	LOCMAR	LOCMAR	Out Of Service	AST	NO	VAULTED	DF-2	1000	BOILER	1997
77375	6	NDTL/FSA 2	NASA	NASA	AIP	UST	NO	STEEL	DF-2	1000	BOILER	1961
77615	6	FSA 1	NASA	SGS	In Service	AST	YES	STEEL	JP-5	20000	ROCKET FUEL	1955
77616	6	FSA 1	NASA	SGS	In Service	AST	YES	STEEL	JP-5	20000	ROCKET FUEL	1955
77617	6	FSA 1	NASA	SGS	In Service	AST	YES	STEEL	JP-5	20000	ROCKET FUEL	1955
77618	6	FSA 1	NASA	SGS	In Service	AST	YES	STEEL	RP-1	20000	ROCKET FUEL	1958
77619	6	FSA 1	NASA	SGS	In Service	AST	YES	STEEL	RP-1	20000	ROCKET FUEL	1958
78710-3	7	RCVR UPS BLDG	AF	SGS	In Service	AST	NO	VAULTED	DF-2	550	EMER. GEN	1999
78710-4	7	RCVR UPS BLDG	AF	SGS	In Service	AST	NO	STEEL	DF-2	90	DAY TANK	0
79150-2	7	TRIDENT ASB	AF	SGS	In Service	AST	NO	STEEL	DF-2	110	EMER.GEN	1991
80505-1	6	MRTB/FSA 2	AF	PAWS	In Service	UST	NO	STEEL	DF-2	1000	BOILER	1964
80700B	6	FSA 1	NASA	SGS	In Service	AST	YES	STEEL	DF-2	10000	NCINERATOR FUE	1962
81550-3	6	COMMAND CONTROL	AF	SGS	In Service	AST	YES	VAULTED	DF-2	2000	EMER. GEN	2000
81550-4	6	COMMAND CONTROL	AF	SGS	In Service	AST	NO	STEEL	DF-2	30	DAY TANK	0
81701	6	NOTU SUPPORT	NAVY	NOTU	AIP	UST	NO	STEEL	DF-2	1500	BOILER	1963

Petroleum Storage Tanks at CCAFS
7 March 2001

Facility	Area	Facility Desc	Account	User	Status	Tank Type	Regulated	Material	Contents	Volume (gals)	Purpose	Installed
81729	7	ROCC BACKUP POWER	AF	SGS	In Service	AST	YES	STEEL	DF-2	10000	EMER.GEN	1996
81729-1	7	ROCC BACKUP	AF	SGS	In Service	AST	NO	STEEL	DF-2	500	DAY TANK-west	0
81729-2	7	ROCC BACKUP POWER	AF	SGS	In Service	AST	NO	STEEL	DF-2	500	DAY TANK-east	0
85125-1	6	SLC 17 OPS	AF	LOCMAR	In Service	AST	NO	VAULTED	DF-2	500	EMER.GEN	1997
90313A	8	PS 2	AF	SGS	In Service	AST	NO	STEEL	DF-2	500	EMER.GEN	1996
90313A-1	8	PS 2	AF	SGS	In Service	AST	NO	STEEL	DF-2	25	DAY TANK	0
95150-2	NASA	TEL IV	AF	CSR	In Service	AST	YES	SCAT	DF-2	2000	EMER.GEN	1996
95150-3	NASA	TEL IV	AF	CSR	In Service	AST	NO	STEEL	DF-2	2000	BOILER	0
95150-5	NASA	TEL IV	AF	CSR	In Service	AST	NO	STEEL	DF-2	200	DAY TANK-East	0
95150-6	NASA	TEL IV	AF	CSR	In Service	AST	NO	STEEL	DF-2	200	DAY TANK-West	0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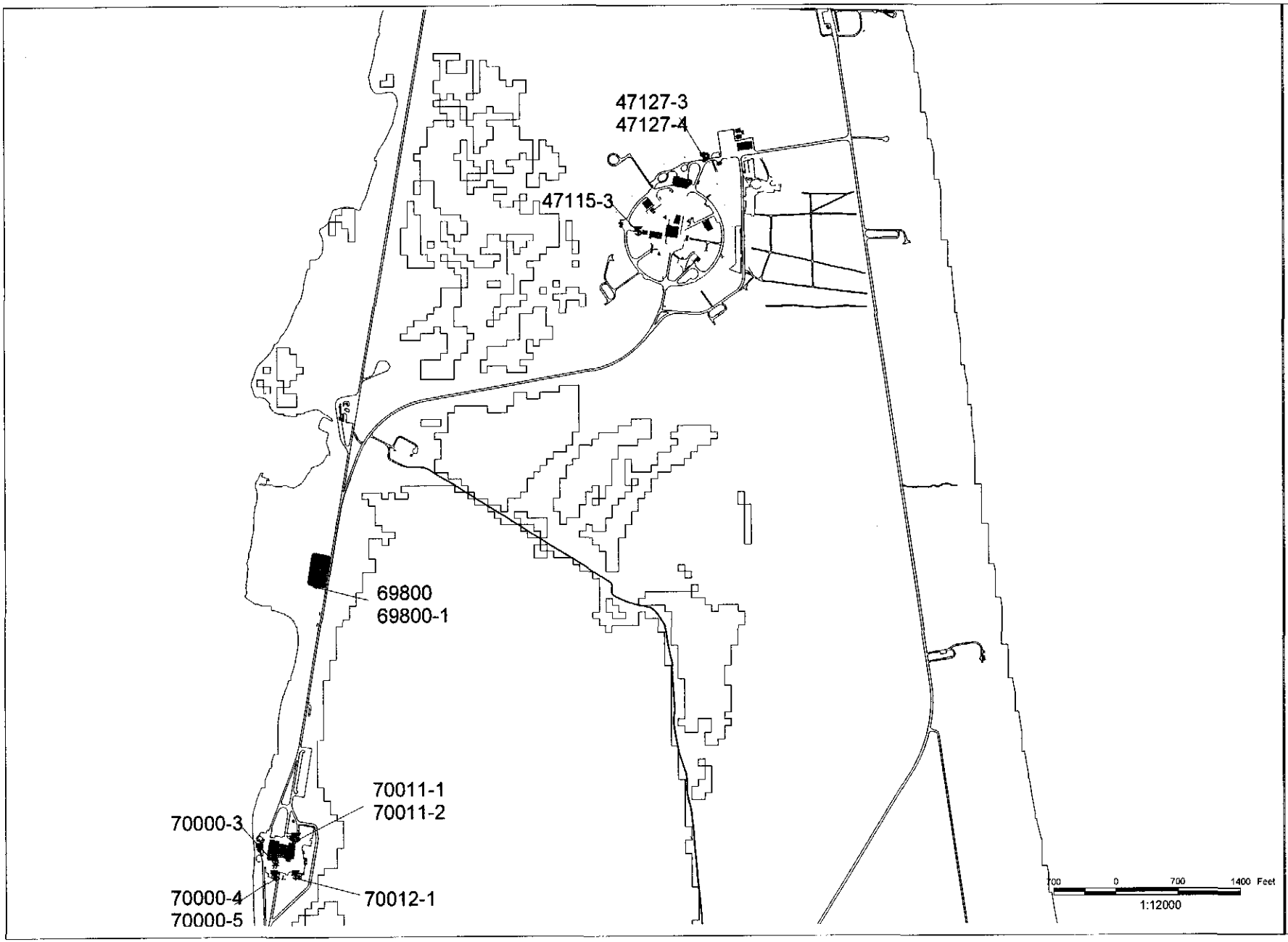
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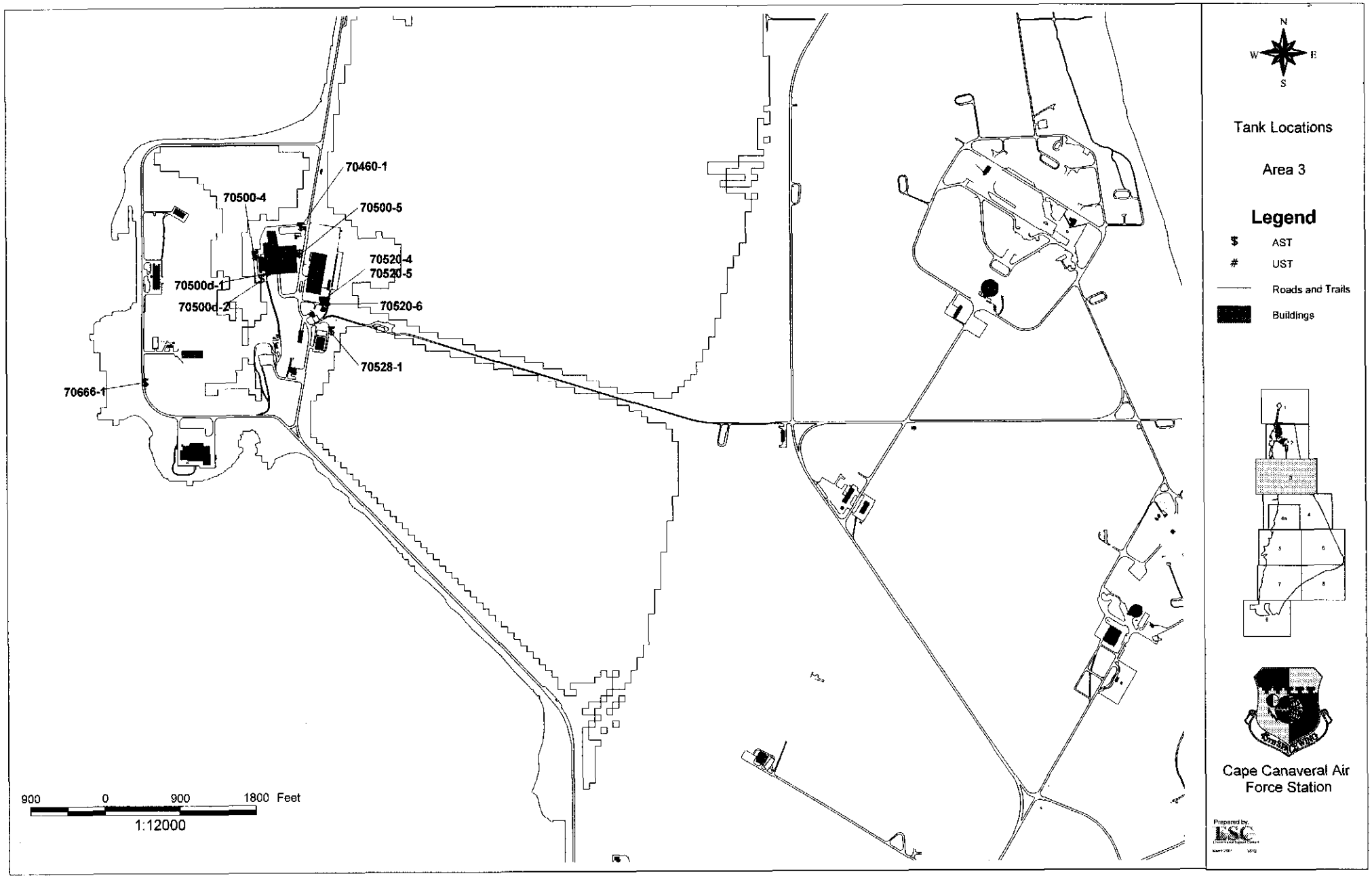
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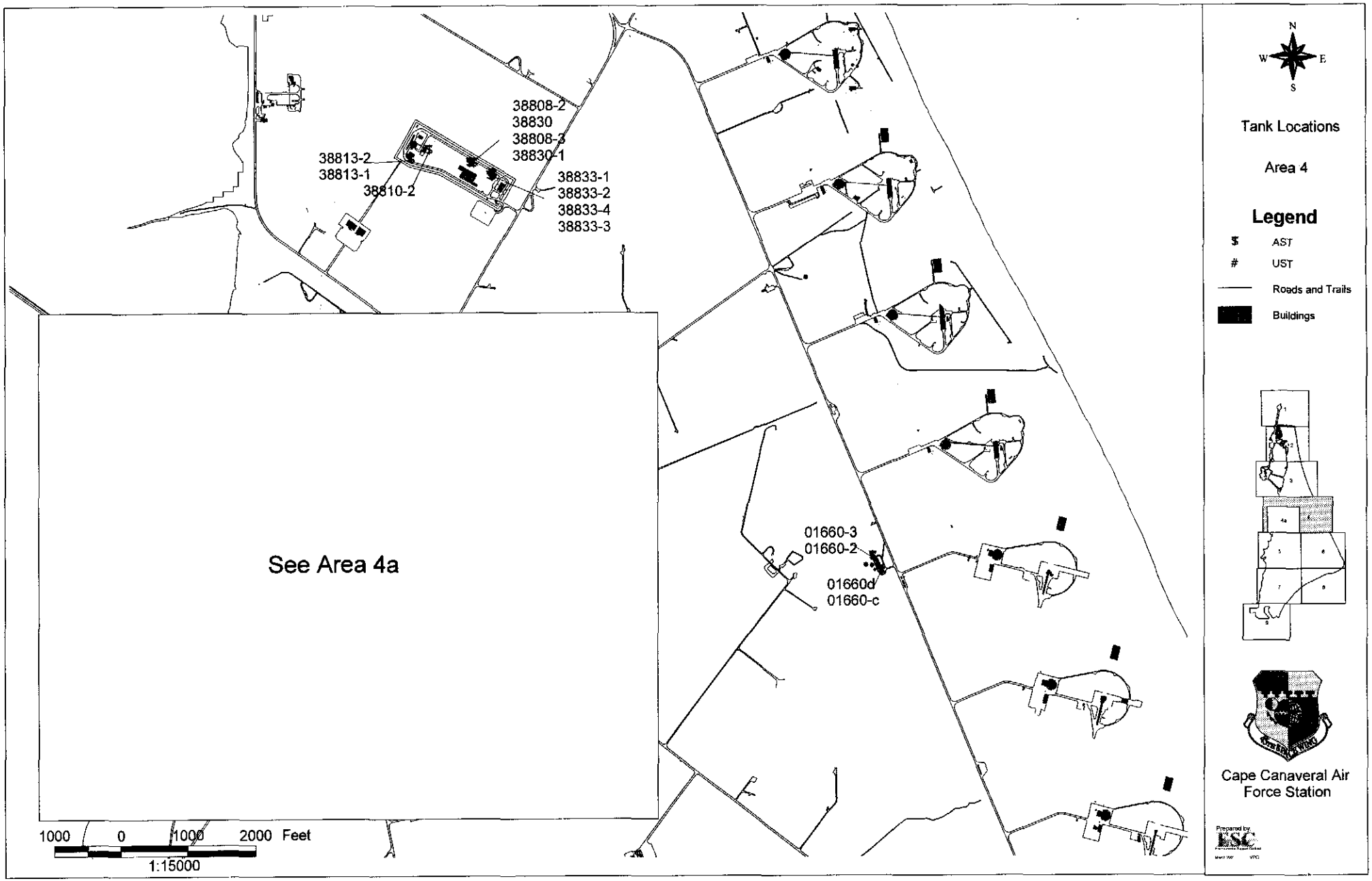
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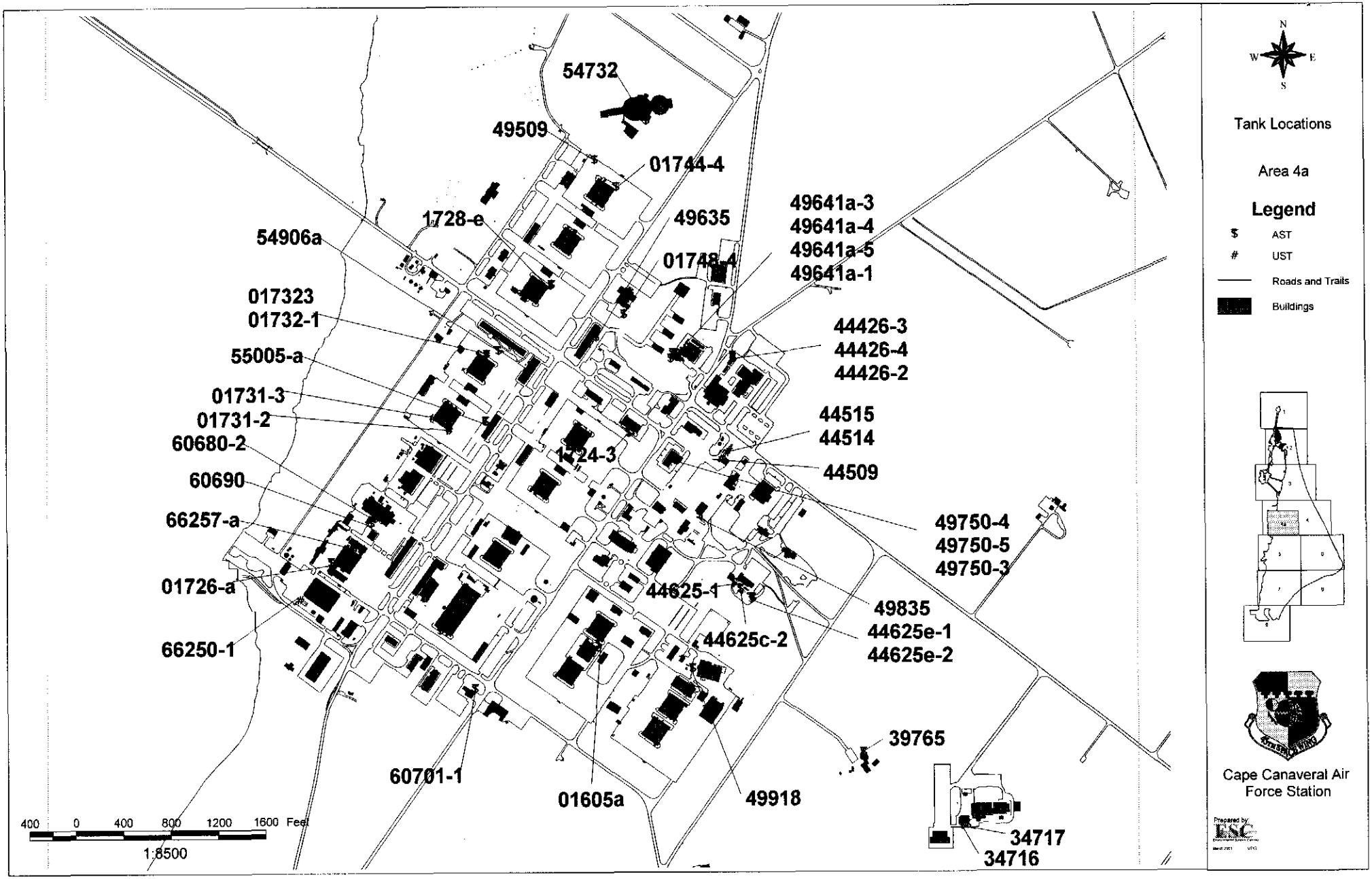
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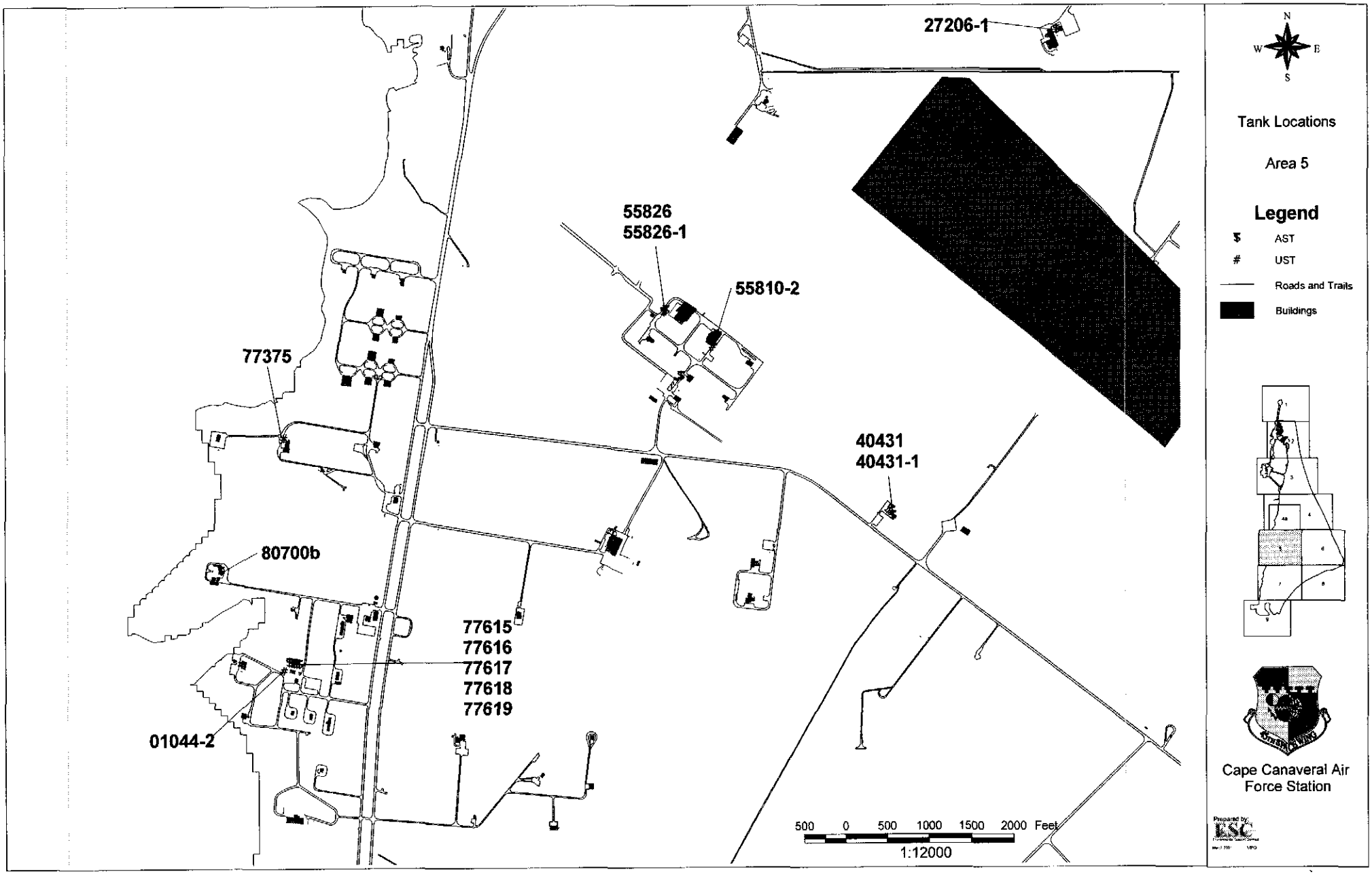
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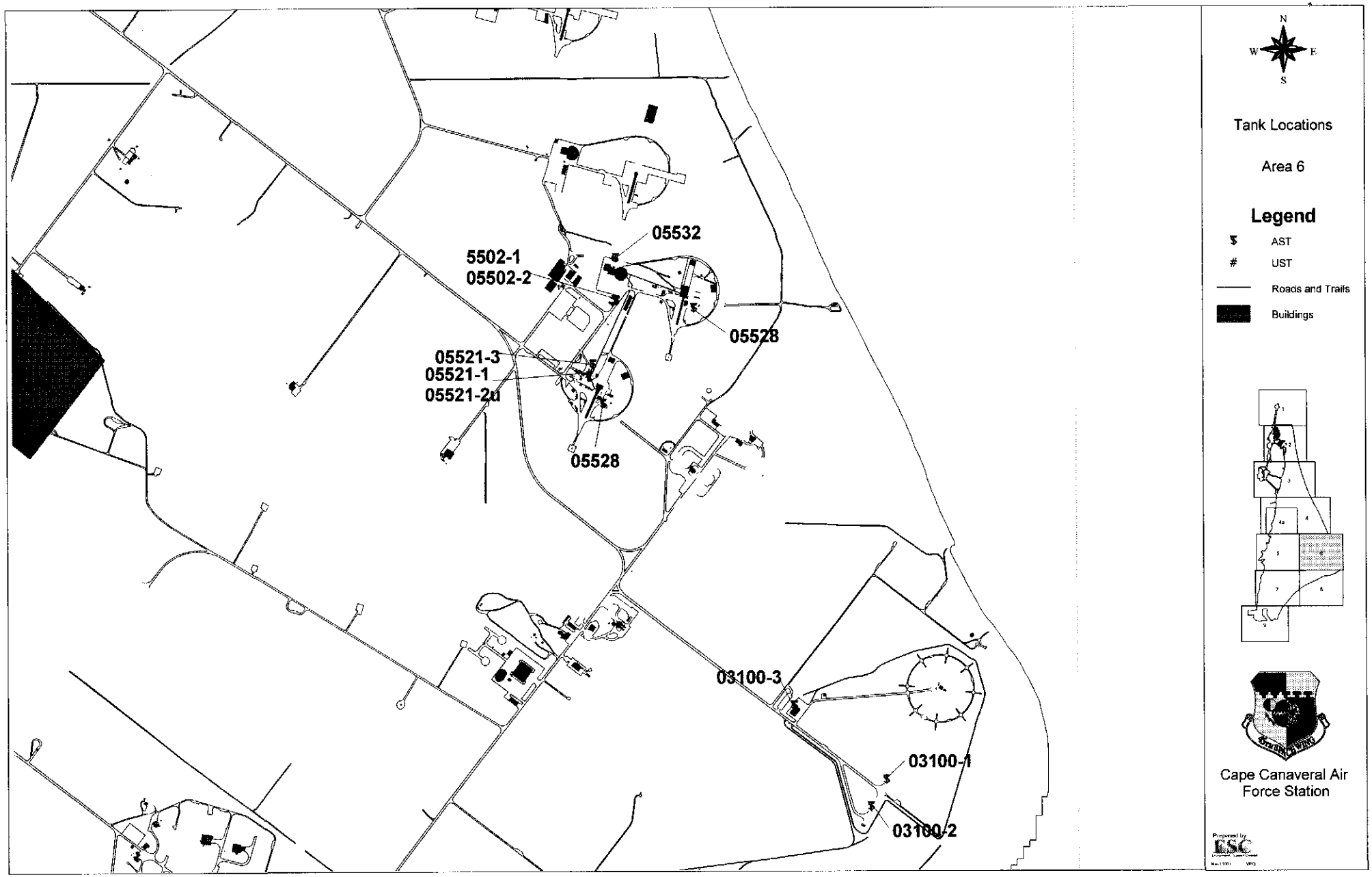
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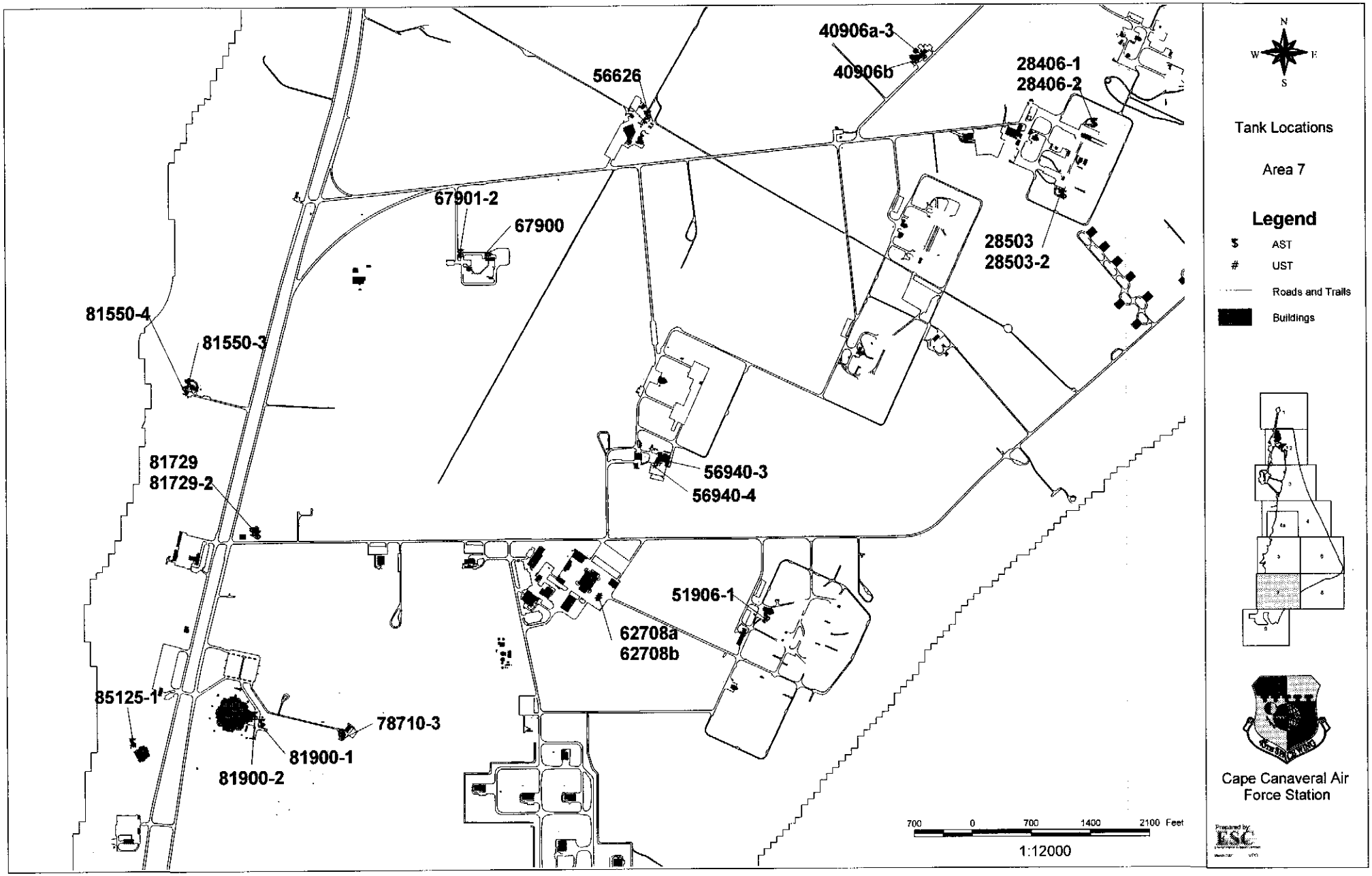
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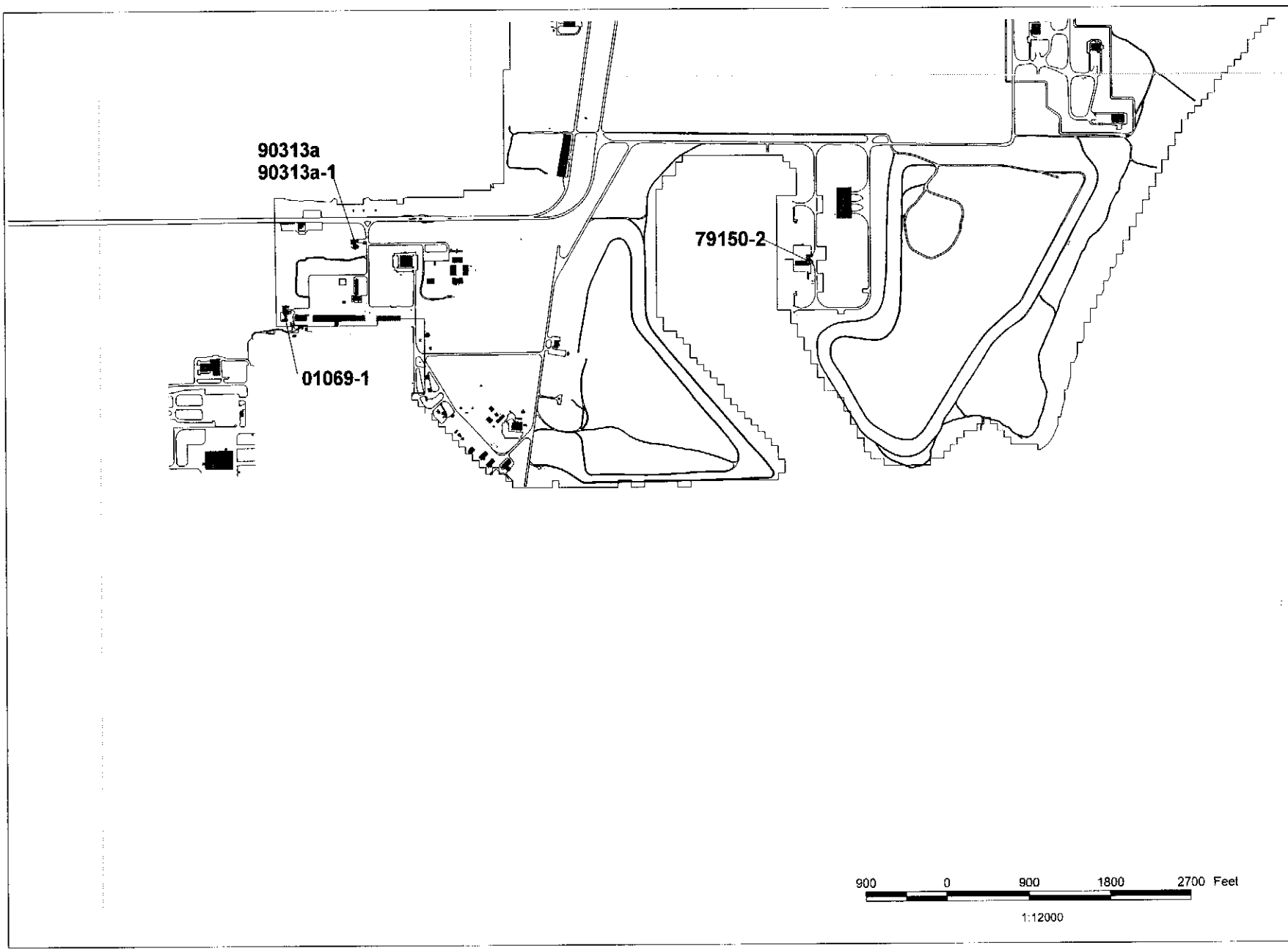
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APPENDIX B—SPCC PLAN FOR NASA TANKS

SPILL PREVENTION, CONTROL AND COUNTERMEASURE (SPCC) PLAN FOR FUEL STORAGE AREA #1 (FSA #1) (HYDROCARBON FUEL AND USED OIL ONLY)

EVM-I-0446-3

Professional Engineers Certification

I, Ronald D. Traylor, hereby certify that this SPCC Plan has been prepared in accordance with good engineering practice. This certification applies to the provision of plan elements as required by 40 CFR, Part 112.7 and does not constitute certification of any drawings, engineering designs, specifications, or other engineering documentation, prepared by others, which may be referenced or attached for information purposes.

Name : Ronald D. Traylor, P.E. Signature: *Ronald D. Traylor*

Company: Space Gateway Support Date: *4/2/01*

Address: P.O. Box 21237, M/C SGS-160

Kennedy Space Center, FL 32815-0237

Florida Registration No.: 34379

SGS INSTRUCTION	NUMBER: EVM-I-0446-3
Andreas Goetzfried	DATE: 4/6/01
APPROVAL AUTHORITY: Director, Environmental Policy	REVISION: 0
Ronald Davis	
OFFICE of PRIMARY RESPONSIBILITY: Branch Manager, Propellants South	
Joanne Creech	
TECHNICAL CONTACT: Manager, Environmental Health and Services	

SUBJECT: **SPILL PREVENTION, CONTROL AND COUNTERMEASURE (SPCC) PLAN FOR FUEL STORAGE AREA #1 (FSA #1) (HYDROCARBON FUEL AND USED OIL ONLY)**

PURPOSE:

The Code of Federal Regulations, 40 CFR, Part 112, requires an SPCC Plan for all non-transportation-related onshore facilities storing, transferring, distributing or consuming oil or oil products that:

1. store fuels in aboveground tanks with a cumulative capacity greater than 1,320 gallons, or in any single aboveground tank with capacity greater than 660 gallons, or

2. store fuels in underground tanks with a capacity greater than 42,000 gallons, and

3. have the potential to discharge harmful quantities into or upon the navigable waters of the United States or adjoining shoreline.

SCOPE:

This SPCC Plan has been developed according to 40 CFR, Part 112.7 for the RP-1/JP-8 Hydrocarbon Fuel Storage Facility (Facility No.'s, 1039, 1044, 77615-77619) and the Used Oil Tank (Facility No. 80700B) located at Fuel Storage Area #1 (FSA #1) on Cape Canaveral Air Force Station (CCAFS). FSA #1 is used by the National Aeronautics and Space Administration (NASA) and the US Air Force (USAF) in support of launch operations at both Kennedy Space Center (KSC) and CCAFS. FSA #1 is located in close proximity to the Banana River Lagoon. (See location map in Attachment 1)

The JBOSC Propellants South Operations Manager, is responsible for ensuring that this SPCC Plan is followed and for maintaining a current copy of the plan at FSA #1.

DEFINITIONS:

- Discharge – includes but not limited to any spilling leaking, pumping, pouring, emitting, emptying or dumping.
- Harmful quantities - discharges of oil in quantities sufficient to violate applicable water quality standards, or to cause a sheen upon or discoloration of the surface of the water

or adjoining shore line or to cause a sludge or emulsion to be deposited beneath the water or upon the adjoining shoreline.

- Hazardous material – any element, compound, mixture, solution or substance listed in 49 CFR 172.101, or 40 CFR 302, including untreated sewage, petroleum products and by-products.
- Oil – oil of any kind or any form including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

COMPLIANCE DOCUMENTS:

SGS Environmental Policy
Title 40, Part 112, Code of Federal Regulations (CFR), Oil Pollution Prevention
Chapter 62-761, Florida Administrative Code (FAC), Storage Tank Systems
Chapter 40C-42, Environmental Resource Permits: Regulation of Stormwater Management Systems
KHB 8800.6, KSC Environmental Control Handbook
KHB 8800.7, Hazardous Waste Management
USAF 45th Space Wing OPLANs (32-3, 19-4)

REFERENCES:

JHB-2000, Cape Canaveral Spaceport Consolidated Comprehensive Emergency Management Plan (CCEMP)
JDP-KSC-P-3008, Kennedy Space Center & Cape Canaveral Air Force Station Joint Documented Procedure, Hazardous Materials Response.
EVM-I-0447-1, JBOSC Post Emergency Spill Cleanup Plan (PESCP)
Q3269, Operations and Maintenance Instruction (OMI) Hydrocarbon Fuel Storage Facility, JP-8 Aviation Turbine Fuel, 60,000 Gallons
Q3789, Operations and Maintenance Instruction Facility 80700 Storage and Transfer Operations
Q3792, Tanker, Operations and Maintenance Instruction Commercial, 7,200 Gallons, Transporter Operated, Hydrocarbon Fuel (JP-8 & RP-1)
Q3801, Operations and Maintenance Instruction Hydrocarbon Fuel Storage Facility, Kerosene RP-1 Propellant, 40,000 Gallons
Q3804, Operations and Maintenance Instruction Tankers, 7,200 Gallons, Petro-Steel, LT-77, LT-78 and LT-79, JP-8
Q6802, Operations and Maintenance Instruction Hydrocarbon Fuel Storage Facility, RP-1/JP-8
PRO-P-0008, Propellants and Life Support Training Plan

QUALITY RECORDS:

Quality Record	Responsible Organization	Retention Period
PMI Monthly Work Order (SON) (Tank Inspection)	Propellants South Operations	3 years
PMI Semi-Annual Work Order (SON) (Tank	Propellants South Operations	3 years

Inspection)		
PRO-F-0011 – Propellants South Operations Sump Water Tracking Logsheet	Propellants South Operations	3 years
KSC FORM 26-541 – Hazardous Waste Manifest (Latest Rev.)	Propellants South Operations	3 years
PRO-F-0012- Propellants South Operations Facility Sump Logsheet.	Propellants South Operations	3 years
PRO-F-0008 – Propellant & Life Support Training Plan	Propellants South Operations	3 years
KSC FORM 21-555 – KSC Pollution IncidentReport	Propellants South Operations	3 years

PROCEDURES:

1.0 AMMENDMENTS

JBOSC Propellants South Operations is responsible for notifying JBOSC Environmental Management of any changes to facility design, construction, operation, or maintenance which materially affect the subject facilities' potential for discharge of oil or oil products prior to, or immediately upon, implementation of such changes. The notification must be made as early as possible to allow time for Environmental Management to make appropriate modifications to the SPCC Plan and obtain the required plan certification by a Professional Engineer (P.E.) within six months of the change. [40 CFR, Part 112.5]

1.1 Annual Review

In addition to immediate notification of major changes, the JBOSC Propellants South Operations Manager (or designee) shall review this document for accuracy at least annually from the signed document date. Verification of the review will be documented by signing the FSA #1 copy in the space provided below and providing a copy of the signed page, along with a listing of any proposed changes to the document, to JBOSC Environmental Management. The SPCC Plan shall be amended by Environmental Management and certified as described in the above section for any changes to facility design, construction, operations, or maintenance that affect the potential for the discharge of oil or oil products. Notes concerning minor changes that do not affect discharge will be prepared by Environmental Management for attachment to the front of the certified SPCC plan and distribution to other official holders of plan copies. Minor changes will be incorporated into the plan at the time of the next P.E. certified plan update.

Name (Printed)	Signature	Date
		2/1/02
		2/1/03
		2/1/04

1.2 Three Year Review

The SGS Propellants South Operations and JBOSC Environmental Management shall review and evaluate the SPCC Plan at least once every three years from the signed document date. The SPCC Plan shall be amended by JBOSC Environmental Management within six months of the review to include more effective prevention and control technology if such technology will significantly reduce the likelihood of a spill event and if such technology has been field-proven at the time of review. P.E. certification will be required for any amendments to the plan to be effective.

2.0 FACILITY INFORMATION

2.1 Security

The RP-1/JP-8 Facility and the Used Oil Tank Facility are located within FSA #1 on Cape Canaveral Air Force Station (CCAFS). The entire CCAFS is a secured military station with an entrance gate guarded 24 hours a day. In addition, FSA #1 is a separately secured area completely surrounded by a fence with a controlled entry point. Access to all facilities contained in FSA #1 is obtained through a security gate. Personnel must present an area access permit badge to a security guard to enter the area. To obtain an area access permit badge, minimum security clearance and facility training requirements must be met. Perimeter lighting is provided at each facility for additional security and safety purposes. The lighting is adequate for operations personnel to discover spills occurring during hours of darkness. Lighting at both facilities is maintained in good working condition at all times.

2.2 RP-1/JP-8 Hydrocarbon Fuel Storage Facility

The RP-1/JP-8 Hydrocarbon Fuel Storage Facility is comprised of fuel loading and off loading areas with spill containment sumps, an enclosed pump station for fuel transfers, and five 20,000 gallon aboveground tanks within a concrete secondary containment. Piping between the loading/offloading areas, the pumping facility and the tanks is located aboveground for ease of inspection and leak detection. Three of the five tanks are used to store a total of 54,000 gallons of JP-8 aviation jet fuel. The remaining two tanks are used to store a total of 36,000 gallons of RP-1 rocket propellant (kerosene). All five tanks are registered with the Florida Department of Environmental Protection as required by Chapter 62-761, Florida Administrative Code (FAC) and are in full compliance with existing federal and state regulations.

Operation and Maintenance Instructions (OMIs) noted in the reference section of this document are used at the facility to provide detailed instruction for conducting periodic maintenance inspections of equipment, tankers, tanks, piping valves, and containment systems and for conducting loading and off loading operations. Included in the OMIs are specific instructions to:

- close containment valves before loading/off loading fuel
- place drip pans under likely equipment/tanker drip points prior to loading / off loading

- dispose of drip pan contents to appropriate containers
- cap fill ports when not in use
- inspect containment systems for stormwater and dispose of it appropriately when contaminated
- inspect tankers for leaking and disconnection prior to driving away

The RP-1/JP-8 Facility has been engineered to prevent the release of hydrocarbons into waters of the U.S. The following sections briefly describe facility equipment and operations.

2.2.1 Tanks

The RP-1/JP-8 Facility employs five elevated cylindrical carbon steel aboveground fuel storage tanks with a tank wall thickness of 3/8 inch. Each 20,000 gallon tank is 10 feet in diameter, 34 feet long, and is equipped with a direct siting liquid level indicator to monitor fuel levels. The tanks are also equipped with an automatic high level shut-off devices to avoid overfills. The operating volume of each tank is limited to 18,000 gallons to allow sufficient space for ullage. The three eastern tanks are used to store JP-8 and are manifolded together so that fuel may be pumped between any of the three tanks. The two western tanks are used to store RP-1 and are similarly manifolded.

2.2.2 Secondary Containment

The five tanks are located within a common concrete secondary containment structure capable of storing approximately 220,000 gallons, which is greater than the required 110% of the total capacity of one of the 20,000 gallon tanks. The containment is painted to the maximum containment level with an impervious coating material approved by the FDEP. The secondary containment is inspected each workday for the presence of stormwater. Stormwater discharged from the secondary containment is controlled by two valves in series. A flapper valve is located at the entrance to the discharge pipe and a gate valve is located at the end of the discharge piping. The gate valve is key locked in the closed position and can only be opened by key holder personnel. Stormwater accumulated in the secondary containment is first visually inspected for the presence of hydrocarbons, and if none are observed, the water is discharged to the stormwater retention area or dry stormwater retention pond. Stormwater observed to contain hydrocarbons is pumped to a waste tanker and properly disposed of per KHB 8800.7, Waste Management Handbook.

2.2.3 Loading/Unloading Operations

Adjacent to the south side of the pump station (Facility 1044), RP-1 and JP-8 fuel loading operations are conducted inside the east tanker trench area while RP-1 and JP-8 fuel unloading operations are conducted inside the west tanker trench area. Each area is constructed of concrete and drains to a grated concrete trench that provides secondary containment to guard against fuel spills during fuel loading and unloading operations. The secondary containment trench for the east fuel unloading area can store a volume of approximately 4,000 gallons while the trench for the west fuel unloading area can store a volume of 5,000 gallons.

The Pump Station employs two separate pumping systems, one for JP-8 and one for RP-1. Each pumping system has two pumps. One pump transfers the fuel from the vendor tanker to the storage tanks and the other pump can transfer fuel from the storage tanks to distribution tankers, from storage tank to storage tank, or recirculate fuel from a storage tank back to itself.

The four inch diameter steel pipes (six pipes for JP-8 and four for RP-1) that transfer the fuel between the pump house and the storage tanks are located aboveground over gravel zones for ease of inspection and leak detection. Pipe supports are designed to minimize abrasion and corrosion and allow for expansion and contraction. The piping between the pump house and the fuel loading/unloading areas is also aboveground, and for the most part, lies over or within the grated concrete trenches.

The secondary containment trenches for the fuel loading/unloading areas can be drained through pipes to the stormwater retention area. The secondary containment trenches are inspected each workday for the presence of stormwater. Stormwater discharged from each containment trench is controlled by a separate gate valve. The gate valves are lockwired in the closed position and can only be opened by key holder personnel. Stormwater accumulated in the secondary containment is first visually inspected for the presence of hydrocarbons, and if none are observed, the stormwater is discharged to the stormwater retention area. Stormwater observed to contain hydrocarbons is pumped to a waste tanker and properly disposed of per KHB 8800.7, Waste Management Handbook.

The pump station, which is equipped with piping, pumps, filter/separators, and valves, has a floor drain system to catch any fuel leaks or spills. The floor drains are connected by double-wall piping and controlled by a gate valve to a 2,500 gallon fiberglass reinforced plastic double-wall underground holding tank. The gate valve is operationally maintained in the open position providing the pump house with a 2,500-gallon secondary containment. The holding tank and double-wall piping are equipped with interstitial leak sensor/warning alarms which are tested each month to confirm operational status. The tank level is monitored with a dipstick each month. The tank contents, usually a mixture of fuel and water, are then pumped to a waste tanker as required and properly disposed of per KHB 8800.7, Waste Management Handbook. This 2500-gallon tank is also registered with the Florida Department of Environmental Protection as required by Chapter 62-761, Florida Administrative Code (FAC).

The fuel loading/unloading areas meet DOT requirements for such facilities. All aboveground piping is set back from fuel loading/unloading areas to prevent collisions with mobile tankers. Furthermore, the piping at the west fuel loading area is mounted on a raised concrete pedestal, which acts as a barrier to contact by mobile tankers. All tankers have a rated capacity of 7,000 to 7,500 gallons. Vendor and distribution tankers are equipped with a high level cut-off for maximum fuel level control. Vendor tankers also have an "anti-drive-away" system, which is activated when the tanker is connected to the facility. Signs warning that all hoses should be disconnected prior to driving away are placed in front and behind tankers loading or off loading to remind drivers of tankers without "anti-drive-away" systems and to serve as an additional warning for those with the systems.

2.2.4 Stormwater Retention

The stormwater management system for the RP-1/JP-8 Facility consists of a grassed retention basin located at the southwest corner of the site. The dry retention area is equipped with a concrete weir and skimmer device at the west end of the basin to allow stormwater to overflow to an isolated mosquito control impoundment. There is presently no connection between the mosquito control impoundment and the Banana River. The St. Johns River Water Management District (Permit #42-009-1083NG) permits the stormwater management system. The retention basin provides storage for an estimated volume of 1,138 cubic feet of stormwater. This is sufficient to retain approximately 8,500 gallons of stormwater runoff.

The tanks' secondary containment system and fuel transfer area containment trenches are connected to the stormwater retention area by valved inlets as described in previous sections.

2.2.5 Spill History

Based upon available information, there have been two spill incidents of notable size at the RP-1/JP-8 Facility and both were contained on site.

May 3, 1989-Approximately 3,000 gallons of JP-5 were spilled during a fuel unloading operation as a result of overfilling one of the JP-5 (now JP-8) tanks. The incident occurred prior to installation of secondary containment on the tanks; however, released fuel did not enter waters of the US. The majority of the fuel infiltrated into the soils on site. Contaminated soil was excavated, properly disposed of, and replaced with clean fill material. High level cutoff valves were installed on the tanks to prevent recurrence.

December 20, 1991-Approximately l00 gallons of JP-5 were discharged into the secondary containment trench at the fuel loading/unloading area during a refueler safing operation. The discharge valve from the containment trench to the retention area was inadvertently left in the open position allowing the fuel to drain into the retention area. Contaminated soil was excavated from the bottom of the retention area, properly disposed of, and replaced with clean fill material. Procedures were established to insure the discharge valve is in the closed position prior to the start of any fueling operation.

2.2.6 Potential Spills

Presuming the five RP-1/JP-8 fuel tanks are filled to maximum operating capacity and all of the tanks fail at the same time, there is potential to discharge 90,000 gallons of fuel. The secondary containment has a capacity of approximately 220,000 gallons. Assuming a simultaneous failure in the secondary containment structure or drainage valve, 90,000 gallons of fuel would be discharged to the stormwater retention area. The stormwater retention area has a maximum capacity of approximately 8,500 gallons; therefore, most of the fuel would escape into isolated wetlands immediately west of the site.

There is also potential to spill fuel from vendor or distribution tankers during fuel loading and unloading operations. Fuel loading and unloading operations occur frequently and often simultaneously. Vendor tankers carry 7,200 gallons of fuel in one tank or three 2,500 gallon compartmented tanks. Distribution tankers carry up to 7,200 gallons of fuel in a single tank. Worst case simultaneous tanker failures during loading/unloading operations at both fueling areas could result in the release of 14,400 gallons of fuel, This large volume of fuel would overwhelm the containment trenches around the fueling area resulting in an overflow of approximately 5,400 gallons. The fuel would flow to grade in all directions ending up in grassed areas to the east and south of the site and into isolated wetlands west of the site.

The scenarios above are worst case situations requiring failure of all safeguards to occur.

2.3 Used Oil Tank

The Hypergol Fuel Equipment Safing Facility (80700) contains a 10,000 gallon aboveground Used Oil Tank (80700B) for accumulation of waste hydrocarbons. The tank, which previously stored No. 2 diesel fuel to fire an incinerator, is now dedicated to the consolidation of used oil prior to offsite shipment. The tank is registered with the Florida Department of Environmental Protection as required by Chapter 62-761, Florida Administrative Code (FAC) and is in full compliance with existing federal and state regulations.

Operation and Maintenance Instructions (OMIs) noted in the reference section of this document are used at the facility to provide detailed instruction for conducting periodic maintenance inspections of equipment, tankers, tanks, piping valves, and containment systems and for conducting loading and off loading operations. Included in the OMIs are specific instructions to:

- close containment valves before loading/off loading fuel
- place drip pans under likely equipment/tanker drip points prior to loading / off loading
- dispose of drip pan contents to appropriate containers
- cap fill ports when not in use
- inspect containment systems for stormwater and dispose of it appropriately when contaminated
- inspect tankers for leaking and disconnection prior to driving away

2.3.1 Tank

The Used Oil Tank is a horizontal cylindrical carbon steel aboveground storage tank with a tank wall thickness of 1/4 inch. The tank has a volume of 10,000 gallons and is 10 feet in diameter and 17 feet long. All piping associated with the tank is aboveground and composed of carbon steel. The tank is equipped with a pneumatic gage to monitor the liquid level which is located in the Control Building (80700A) adjacent to the tank. The tank is equipped with an overflow alarm and flashing beacon.

2.3.2 Secondary Containment

The tank is located within a secondary containment structure capable of storing a volume of approximately 15,000 gallons, which is greater than the required 110% of the capacity of the 10,000-gallon tank. The secondary containment structure is constructed with concrete walls and a pure sand floor overlain by a flexible impermeable liner that covers the floor and extends up the inside walls and the tank saddles. The liner is designed to provide a liquid tight/product tight barrier at all joined seams, corners, skirts, joints and connection locations within the concrete walls surrounding the tank. The secondary containment is inspected for the presence of stormwater following storm events or as required. Stormwater accumulated in the secondary containment is first visually inspected for the presence of hydrocarbons, and if none are observed, the water is discharged to grade using the facility sump pump or a portable pump. Stormwater observed to contain hydrocarbons will be pumped to a waste tanker and properly disposed of per KHB 8800.7, Waste Management Handbook.

2.3.3 Loading/Unloading Operations

The tank is equipped with a fill line and a discharge line, which extend from the center top of the tank over the containment wall. Vendor and KSC tankers utilize on-board pumps to transfer hydrocarbons to and from the tank. Drip pans are placed beneath hose connections to catch any leaking fluids. Liquid captured in drip pans during operations is properly disposed of according to KHB 8800.7, Waste Management Handbook. During tank loading operations, authorized personnel constantly monitor the tank and tanker liquid level indicators to avoid overfill. Signs warning that all hoses should be disconnected prior to driving away are placed in front and behind tankers loading or off loading as a reminder to drivers.

2.3.4 Stormwater Retention

There is no stormwater management system for the Hypergol Fuel Equipment Safing Facility. Stormwater is discharged to the surrounding grassy and wetland areas. The secondary containment system for the tank does not contain a drain valve and the discharge of stormwater is conducted as described in Section 2.3.2.

2.3.5 Spill History

Based on available information, there has never been a failure or a spill incident of notable size from the Used Oil Tank at the Hypergol Fuel Equipment Safing Facility. Small quantities (up to a few gallons), of residual No. 2 diesel fuel have spilled from hoses during past fueling operations when the tank was used as an incinerator fuel tank. These spills were contained on surrounding pavement and cleaned up by on-site personnel.

2.3.6 Potential Spills

Presuming the tank is filled to maximum capacity, there is a potential to discharge 10,000 gallons of used oil. The secondary containment has a capacity of 15,000 gallons. Assuming a simultaneous failure in the secondary containment structure, 10,000 gallons of used oil would be discharged to the environment. The hydrocarbon fluids would flow east,

across the perimeter access drive, into the surrounding isolated wetlands and also permeate the soil floor under the containment system liner.

There is also potential for a spill during loading and unloading operations. Vendor and KSC tankers have a maximum capacity of approximately 6000 gallons. The used oil would also flow east across the perimeter drive into surrounding isolated wetlands. For either a tank or tanker spill, spill containment/cleanup measures described in Section 3.3 would be implemented immediately to minimize any damage.

3.0 REQUIRED INSPECTIONS, RECORDS, & TRAINING

3.1 Inspection & Records

The tanks and associated equipment at the RP-1/JP-8 and Used Oil Tank Facilities are inspected on regular calendar frequency, as identified in the referenced OMIs and as required by FDEP tank regulations. Inspection conditions are documented on appropriate work documents that are retained for review by government inspectors.

The Systems Maintenance Engineer and facility Supervisor or Designee are assigned responsibility for the appearance and condition of the facility. Anomalies are corrected by initiation of separate work orders for other JBOSC operational units, which maintain the grounds, stormwater system, and containment systems and provide corrosion control for tank and piping components. Special instructions are provided to the JBOSC organizations as required to obtain a condition meeting the intent of appropriate regulations and NASA and Air Force standards.

Brief records of stormwater releases from the RP-1/JP-8 and HPI facilities containment systems are maintained to document the date, time, inspection, and that stormwater was inspected for contamination prior to release to the stormwater retention area at the RP-1/JP-8 facility or to grade at the Used Oil Tank facility.

Records, including inspection reports, tank system tests, and Pollution Incident Reports (see Section 3.3) are retained by the Systems Maintenance Engineer at FSA #1 for a period of three years. These documents are available to government inspectors for review.

Since the fuels at these facilities are not used for vehicles, government exemptions do not require quantity management reports.

3.2 Training

All personnel assigned to operate and maintain the RP-1/JP-8 Facility or the Used Oil Tank are required to attend annual training classes addressing OSHA first responder requirements, hazardous communications, hazardous waste management, first aid and fire suppression. Operations personnel also must receive on-the-job training certifications for specific facility operations (CN-PS-142JBO, Hydrocarbon Fuel Operations Certifications) which must be renewed every 2 years. Names of candidates who successfully complete the certification process are forwarded to the JBOSC Technical

Training Department and the information is recorded in the KSC Training and Certification Record System (PM-50).

In addition, Operations & Maintenance supervisors are responsible for ensuring that all employees receive proper training, including familiarization with this SPCC plan, prior to performing work at the subject facilities.. This training addresses the location of the SPCC plan, as well as, spill prevention, reporting, containment, and cleanup procedures. Any known spill events or failures, malfunctioning components, and recently developed precautionary measures are also addressed. The frequency of this training is determined by the Operations & Maintenance Supervisors, but should be held at least every three years, or as necessary to accommodate new employees. SPCC training briefings are documented to include dates, times, topics covered and signed employee attendance sheets. Training records are available for review or inspection.

3.3 Spill Clean-up Procedures

Spill cleanup procedures for discharges of hydrocarbon fuels from the RP-1/JP-8 or Used Oil Tank facilities are outlined in the Consolidated Comprehensive Emergency Management Plan (JHB-2000), the Hazardous Material Response Procedure (JDP-KSC-3008) and the Post Emergency Spill Cleanup Plan (EVM-I-0447-1). Depending upon the type, quantity and emergency nature of the spill, it will be contained and cleaned up by site operational personnel or by the JBOSC HazMat and Post Emergency Spill Cleanup Team.

In all cases the spill will be reported to the Operations & Maintenance Supervisor, who is responsible for completing and submitting a KSC Pollution Incident Report (KSC Form 21-555) to JBOSC Waste Management within 24 hours of the incident. Upon receipt of the Pollution Incident Report, JBOSC Waste Management will notify the NASA Environmental Program Office, who will notify appropriate regulatory agencies, as required.

3.3.1 Non-Emergency Spills

When a minor, non-emergency spill that can be cleaned up by in house equipment and personnel is discovered, SGS Propellant South Operations personnel will report the incident to the Operations & Maintenance Supervisor, who will contact the JBOSC Propellants South Manager and the Joint Communications Control Center (JCCC) at 911. The following information will be provided to JCCC:

a. **Specify "This Is Not An Emergency Call".**
b. Name of individual reporting spill.
c. Location of spill incident.
d. Type and source of material spilled.
e. Approximate quantity and rate of discharge.
f. Any action underway to contain or cleanup the spill.

JCCC will notify, as appropriate, the Fire Department, Security Police, Environmental Health Services, Safety Manager, HazMat Team and all other spill response or support personnel as required per the Hazardous Materials Emergency Response Procedure and will monitor the situation.

3.3.2 Emergency Spills or Spills Too Large for In House Personnel

In the event of an spill to the environment which creates an emergency situation and/or that is beyond the capability of on-site personnel to contain and cleanup, the following procedure shall be followed:

1. If safe, terminate operations immediately. Attempt to plug/seal leaking equipment or transfer product to another appropriate tank or tanker.

2. If an emergency situation exists evacuate the area.

3. Report the incident to the Operations & Maintenance Supervisor, who will contact the SGS Propellants South Branch Manager and JCCC at 911. The following information will be provided to JCCC:

    a. Name of individual reporting spill.
    b. Location of spill incident.
    c. Number and nature of injuries to personnel.
    d. Type and source of material spilled.
    e. Approximate quantity and rate of discharge.
    f. Extent to which the spill has traveled.
    g. Waters that might be affected.
    h. Any action underway to contain or cleanup the spill.

    JCCC will notify the Fire Department, Security Police, Environmental Health Services, Safety Manager, HazMat Team and all other spill response or support personnel as required per the Hazardous Materials Emergency Response Plan.

4. Until the arrival of the Incident Commander as designated by the Hazardous Materials Emergency Response Plan, the Operations and Maintenance Supervisor will function as the Incident Commander and will be responsible for coordinating and directing safety and pollution control activities at the site. Personnel trained for spill response will safely contain the spill, as directed by the Incident Commander. Special attention will be given to containing the spilled product on site and preventing discharges to nearby surface waters, storm drains, sewer drains, drainage ways, or soils. The FSA #1 Operations and Maintenance Supervisor is responsible for ensuring that Building 1039 is at all times stocked with sufficient spill containment and cleanup materials (see Attachment 2) to initiate response to a major spill.

3.3.3 Contained Spills

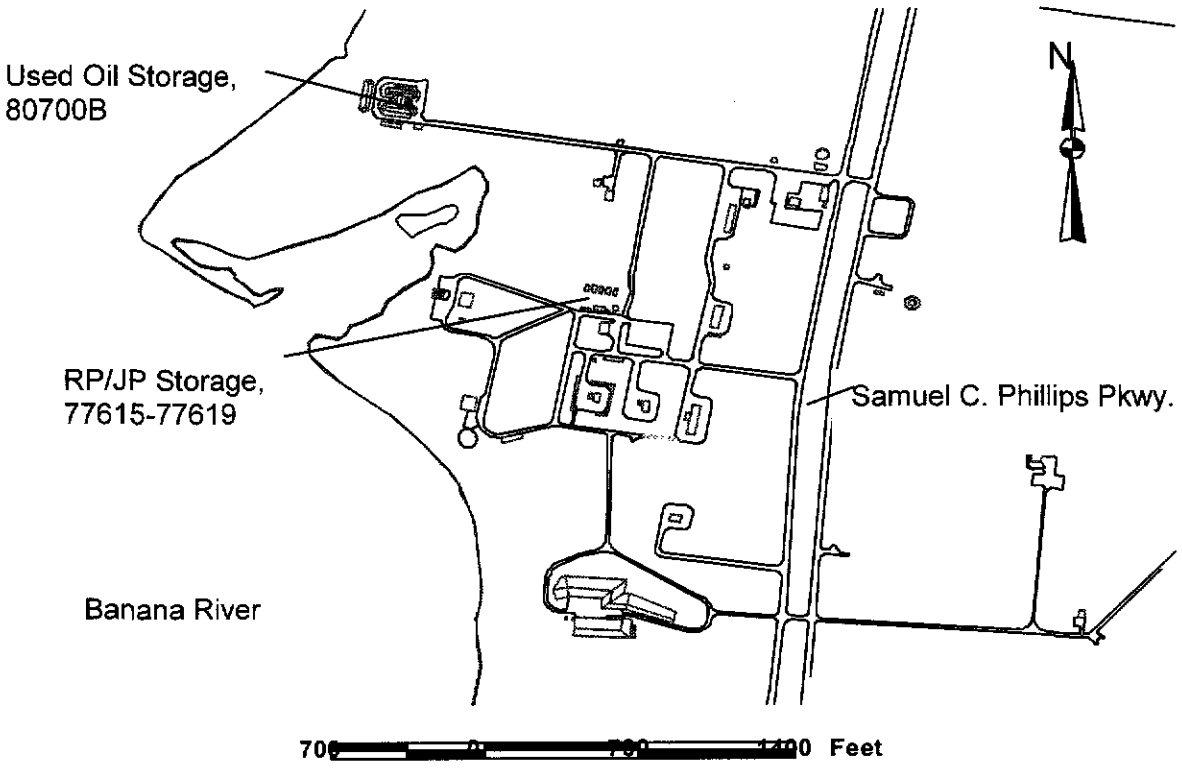
Spilled product that is confined to designated secondary containment systems will be reclaimed and disposed of according to normal operating procedures. These spills will be reported to the Operations & Maintenance Supervisor, who will be responsible for determining if further notifications are required. Preparation of a KSC Pollution Incident Report is required for spills within a containment.

3.3.4 Disposal

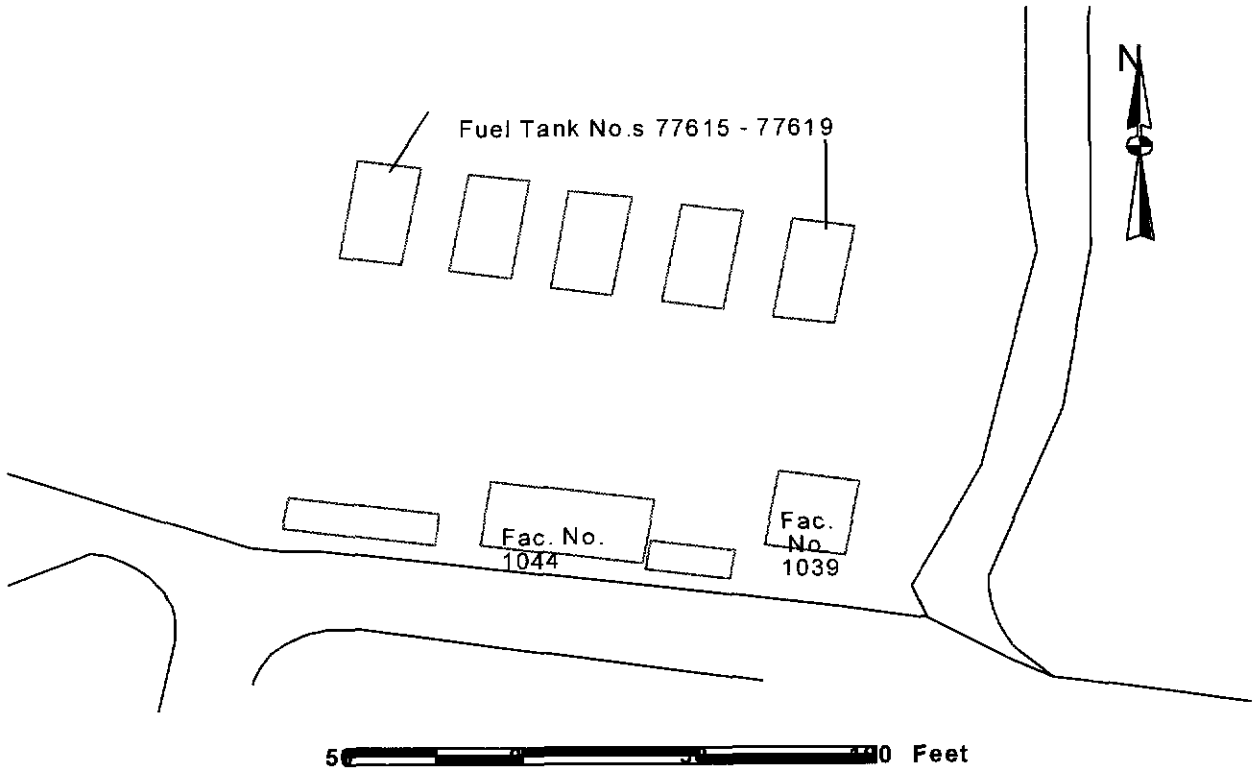
SGS Propellants South Operations personnel will be available to provide support as required for proper disposal of spilled commodities and residue. Contaminated soil and absorbent materials will be placed in U.S. Department of Transportation (DOT) specification containers. Equipment used for spill clean up will be decontaminated and all residues will be properly containerized for disposal. All wastes will be disposed of in accordance with KHB 8800.7A and OPLAN 19-14. The Propellants South Waste/Environmental Engineer and/or JBOSC Waste Management may be contacted for assistance with waste disposal procedures.

ATTACHMENT 1

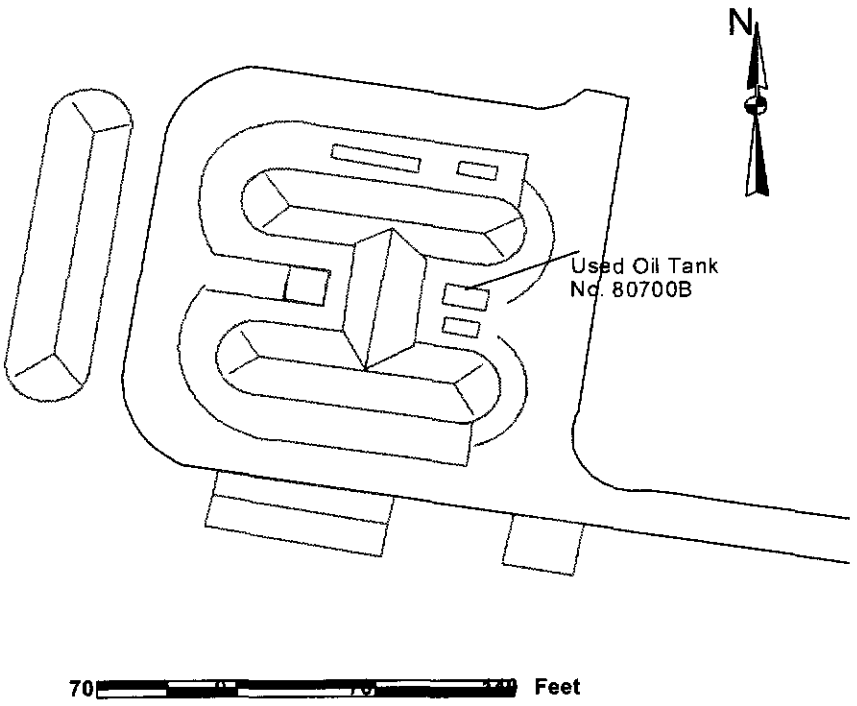
MAPS



Site Map: Fuel Storage Area #1



RP-1/JP-8 Hydrocarbon Fuel Storage Facility
Fuel Storage Area #1



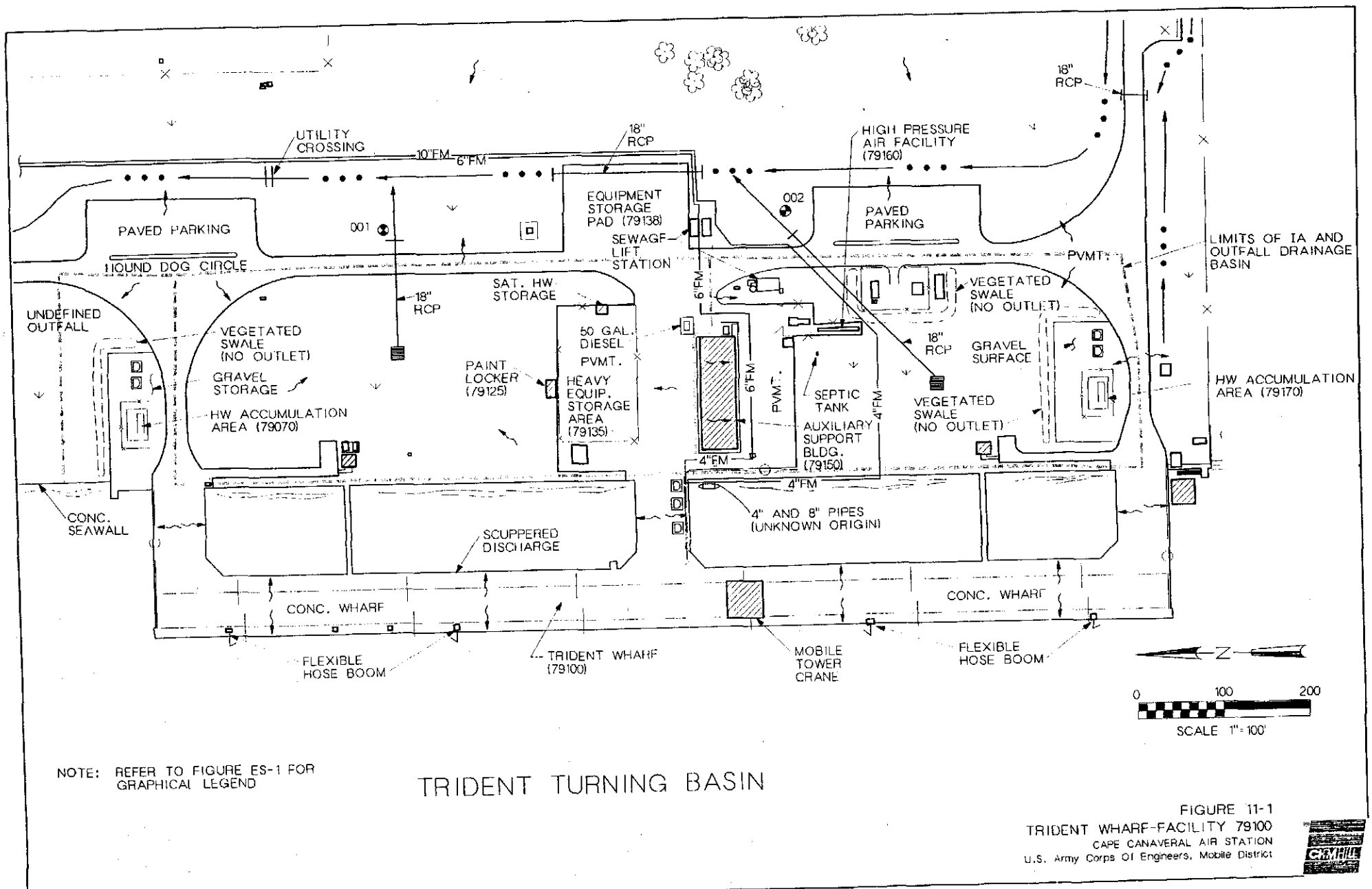
Hypergol Fuel Equipment Safing Facility, Used
Oil Storage Tank
Fuel Storage Area #1

ATTACHMENT 2

HAZARDOUS MATERIALS SPILL RESPONSE INVENTORY LIST, BUILDING 1039

MATERIAL	QUANTITY
UNIVERSAL PIG MAT ROLLS	300' ROLL
HEAVY FLUIDS PADS	50 PADS
SMALL RESPONSE CART	1
SMALL WALL KIT	1
FUNNEL & COVER	1
FUEL SOLIDIFIER	4
LITE-DRI ABSORBENT	10 BAGS
VERSATILE CONTAINER KIT	1
BLUE SPILL KIT REFILL	1
NO SPARK SHOVEL, LARGE	2
NO SPARK SHOVEL, SMALL	4
REPAIR PUTTY	6 STICKS
OIL-ONLY MAT ROLL	300' ROLL

APPENDIX C—OUTFALL AND DRAINAGE MAPS

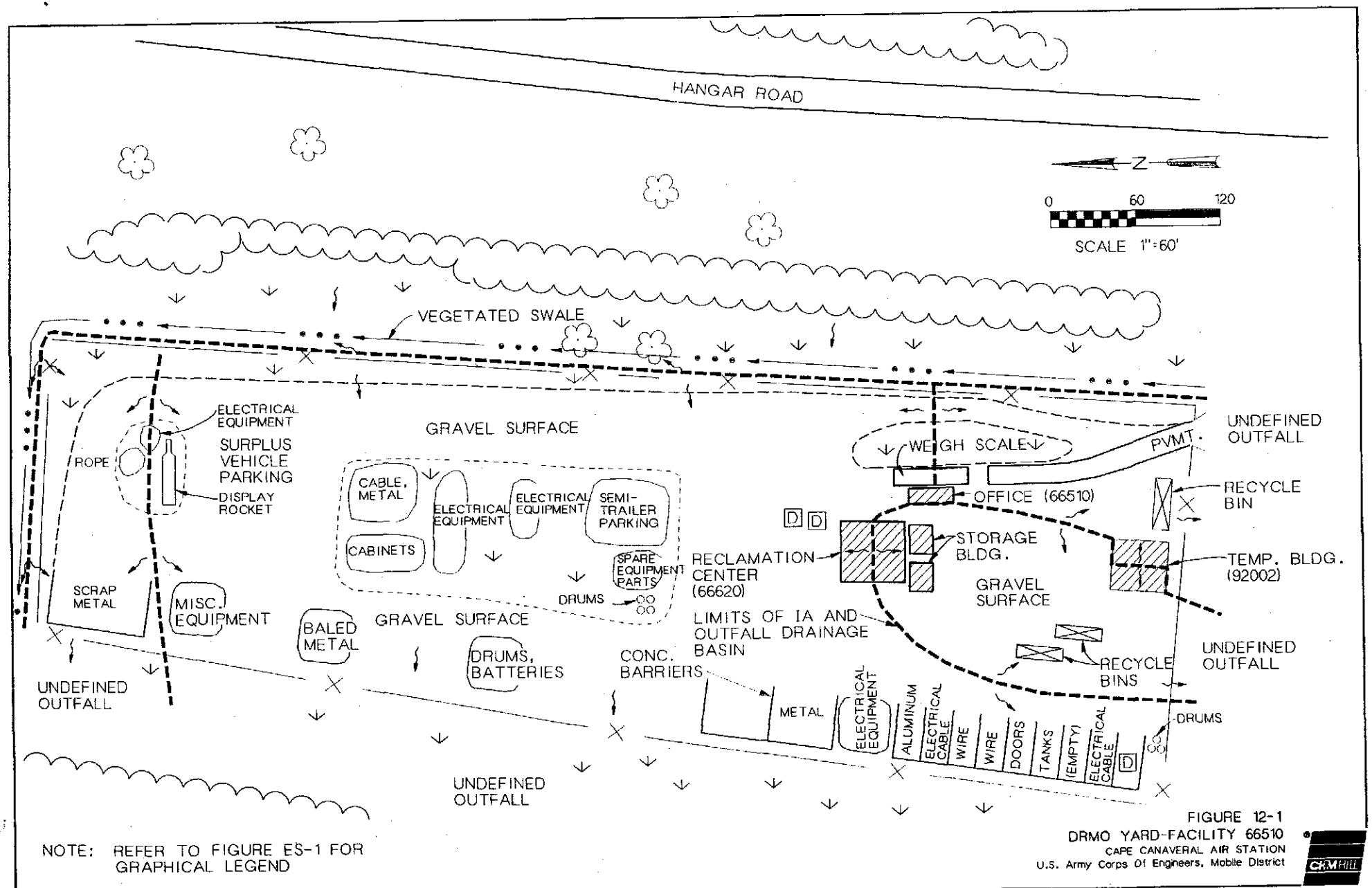


NOTE: REFER TO FIGURE ES-1 FOR GRAPHICAL LEGEND

TRIDENT TURNING BASIN

FIGURE 11-1
TRIDENT WHARF-FACILITY 79100
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

1344c01a.dlv



NOTE: REFER TO FIGURE ES-1 FOR GRAPHICAL LEGEND

FIGURE 12-1
DRMO YARD-FACILITY 66510
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

CH2M HILL

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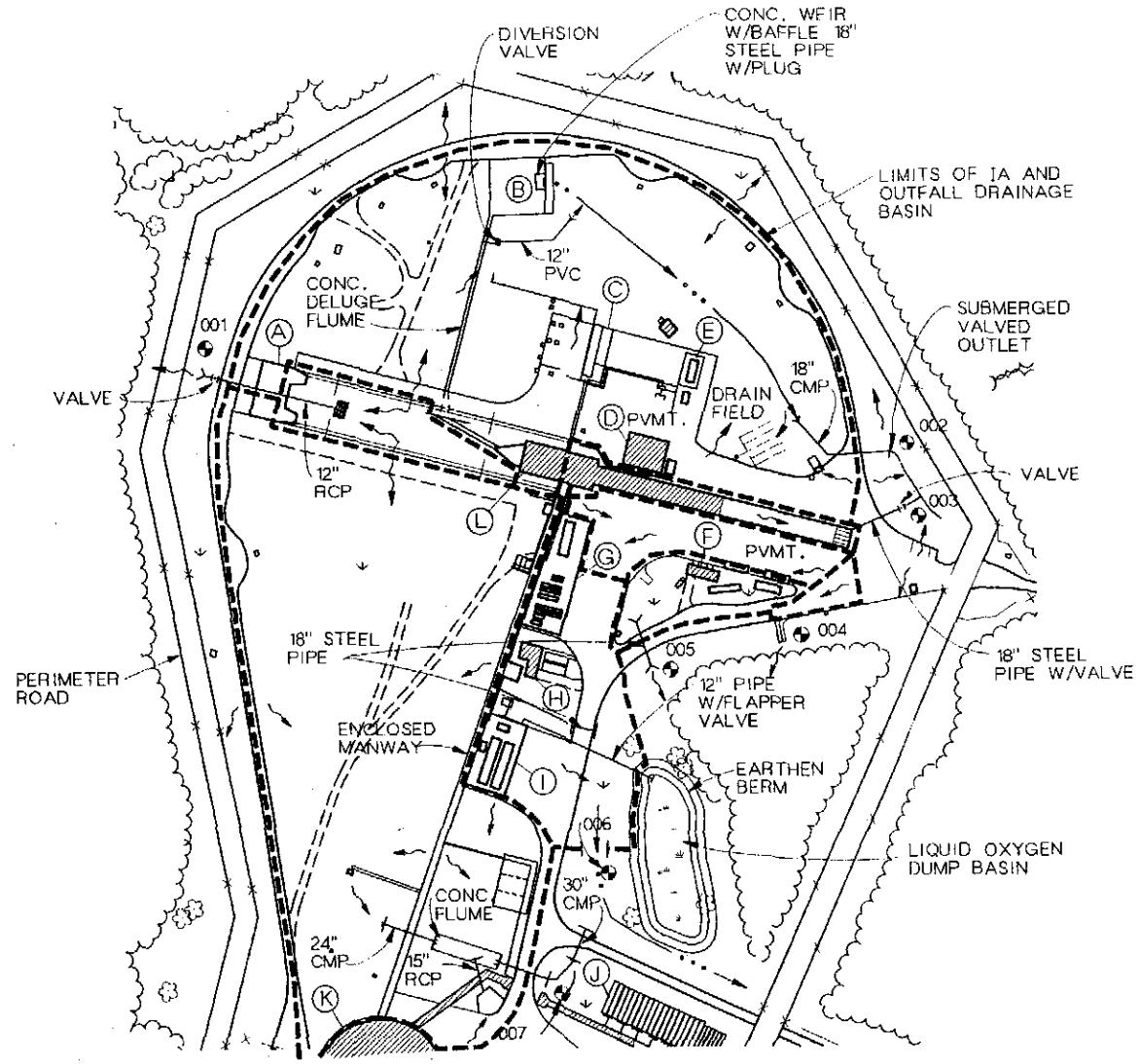

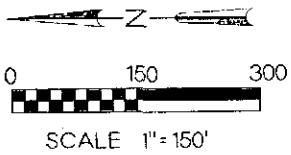

MAP ID	FACILITY
A	MOBILE SERVICE STRUCTURE (5553)
B	DELUGE WATER BASIN
C	LIQUID HYDROGEN STORAGE FACILITY(5506)
D	ENVIRONMENTAL CONTROL SHELTER (5531)
E	RP-1 FUEL STORAGE FACILITY (5528)
F	PAINT STORAGE BLDG. (5527)
G	NITROGEN STORAGE FACILITY (5515)
H	PAD SUPPORT SHOP (5504)
I	LIQUID OXYGEN STORAGE FACILITY (5529)
J	HELIUM STORAGE AREA (5514)
K	LAUNCH CONTROL BLDG.
L	LAUNCH & SERVICE FACILITY (5510)

NOTE: REFER TO FIGURE ES-1 FOR GRAPHICAL LEGEND.

FIGURE 13-1
ATLAS ROCKET PAD-COMPLEX 36A
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

CH2M HILL

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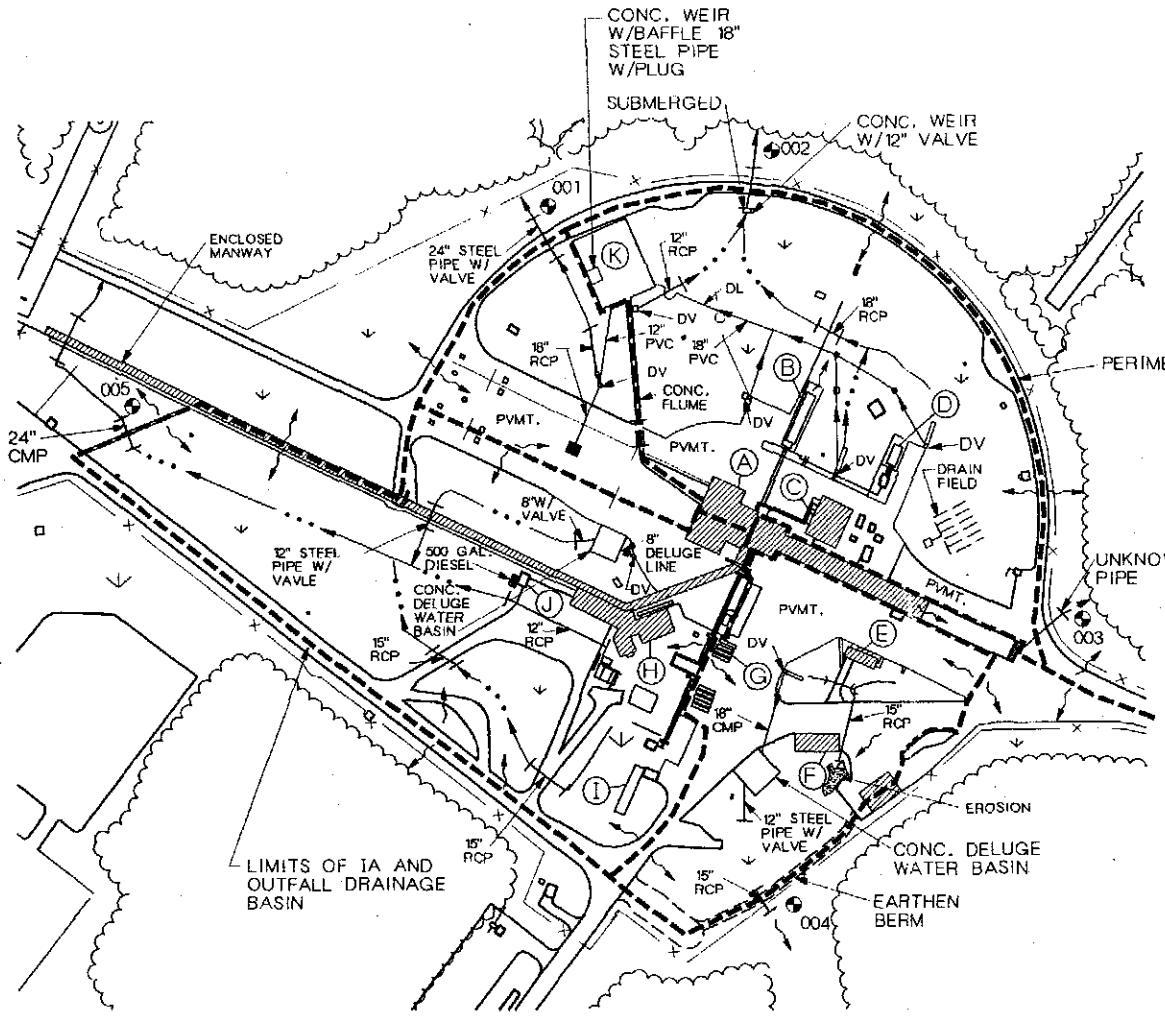

MAP ID	FACILITY
A	LAUNCH & SERVICE FACILITY (5533)
B	LIQUID HYDROGEN STORAGE AREA (5519)
C	AIR CONDITIONING BLDG. (5548)
D	RP-1 FUEL STORAGE AREA (5541)
E	PAINT STORAGE BLDG. (5535)
F	SHOP & ADMINISTRATION BLDG. (5542)
G	HELIUM STORAGE TANKS (5518)
H	CARDAIR COMPRESSOR BLDG.
I	OXIDIZER STORAGE AREA (5536)
J	ELECTRICAL GENERATOR
K	DELUGE WATER BASIN

NOTE:

1. DV DENOTES DIVERSION VALVE ASSOCIATED WITH THE DELUGE WATER CONTAINMENT SYSTEM.
2. REFER TO FIGURE ES-1 FOR GRAPHICAL LEGEND.

FIGURE 14-1
ATLAS ROCKET PAD-COMPLEX 36B
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

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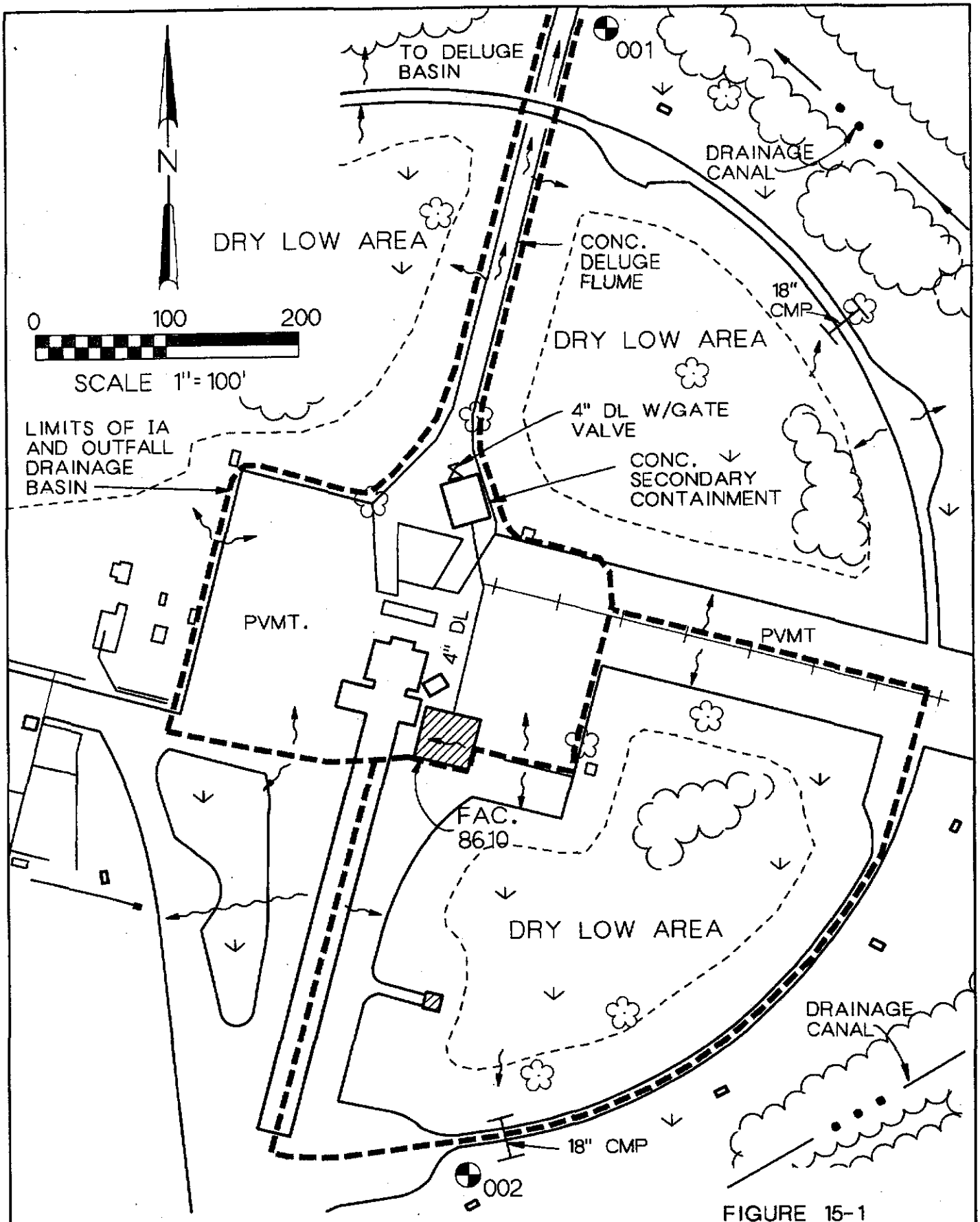

NOTE:
REFER TO FIGURE ES-1
FOR GRAPHICAL LEGEND

FIGURE 15-1
HYPERGOLIC FUEL CONDITIONING BLDG.
FACILITY 8610
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

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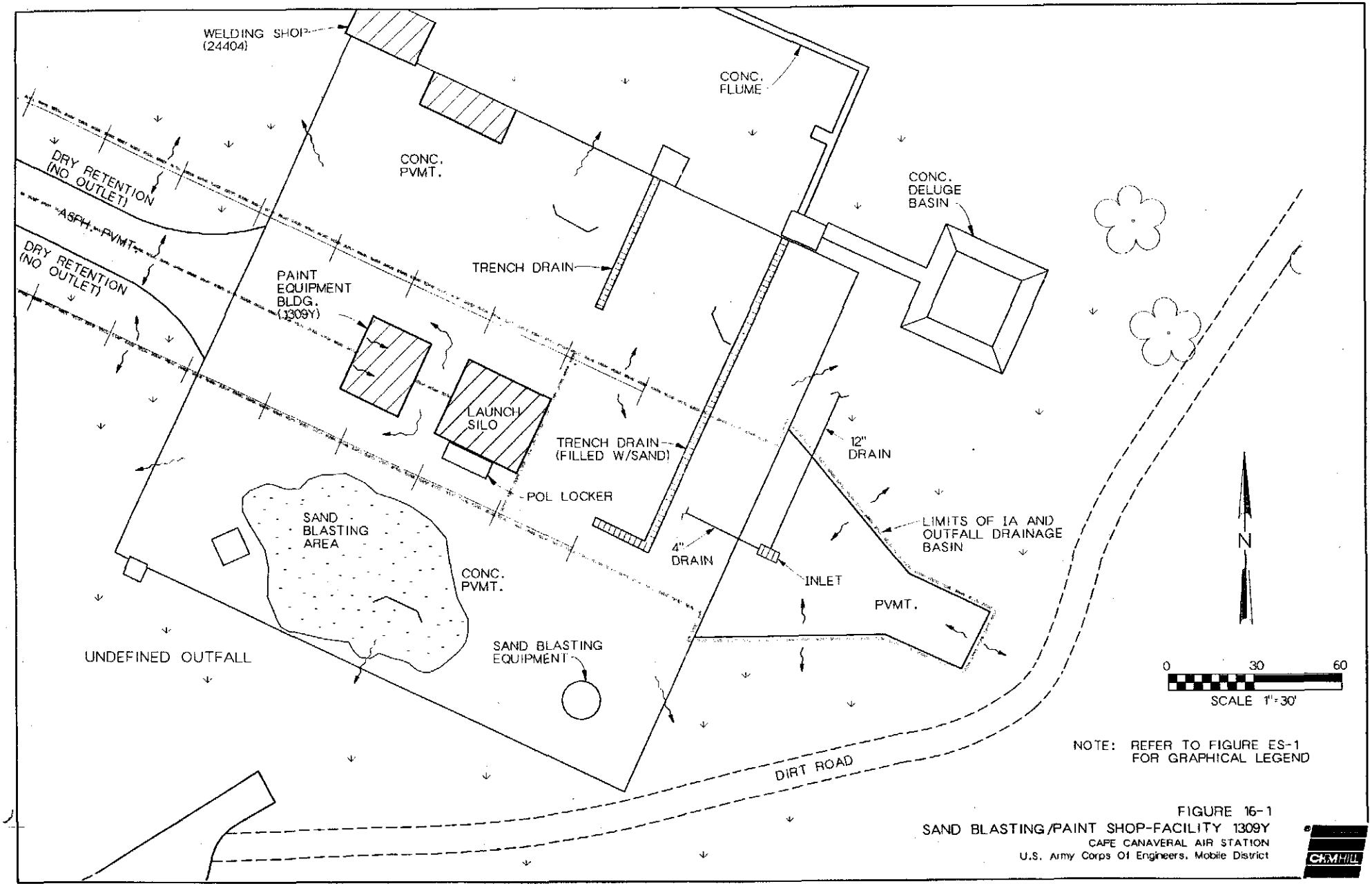
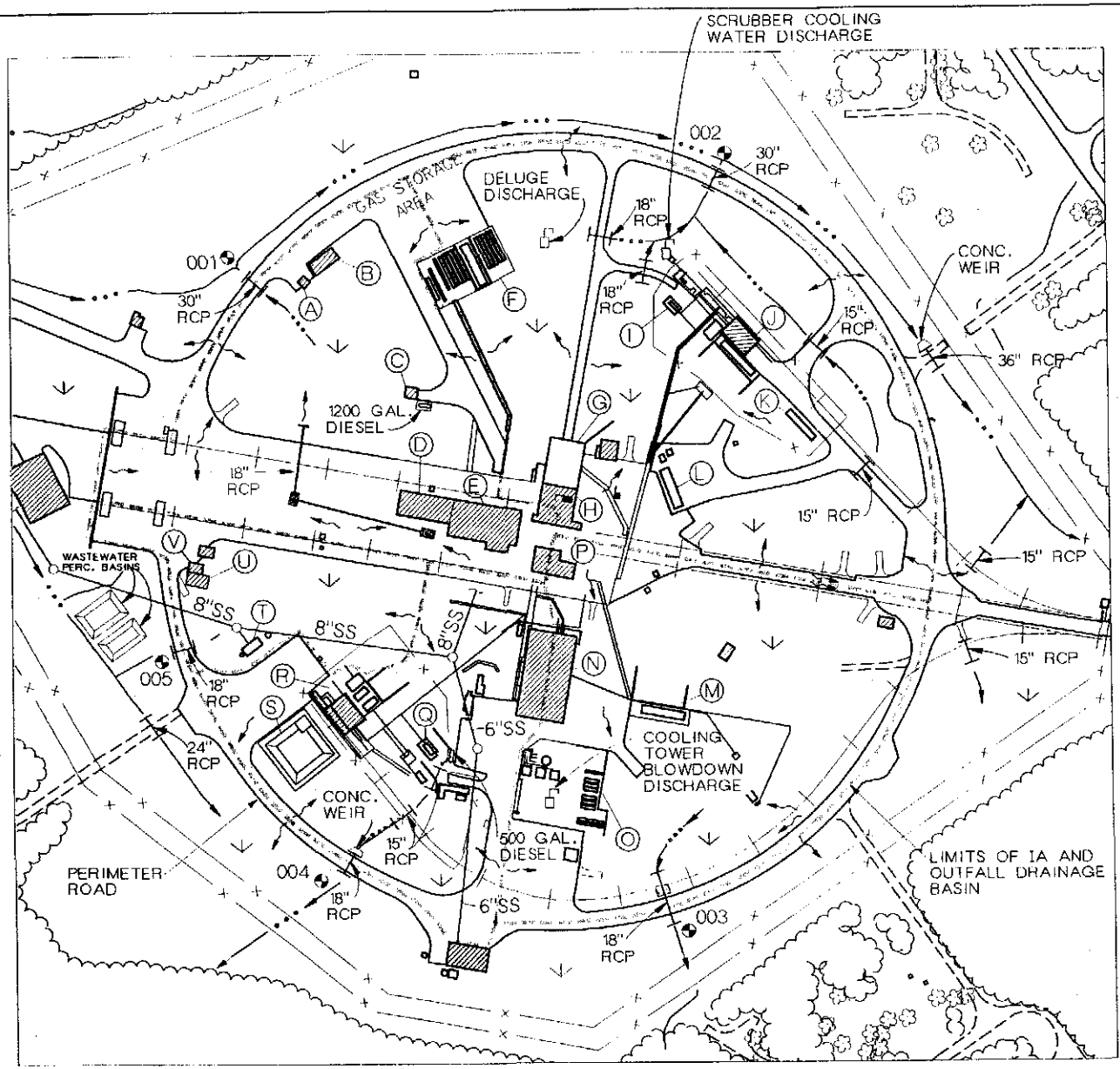


FIGURE 16-1
SAND BLASTING/PAINT SHOP-FACILITY 1309Y
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

CH2MHILL

1344c100.dlv



N

0 150 300

SCALE 1" = 150'

MAP ID	FACILITY
A	POL STORAGE BUILDING (29100T)
B	POL STORAGE BUILDING (29118)
C	EMERGENCY POWER SHELTER (29115)
D	AGE SECURITY SHELTER
E	AGE BUILDING (29103)
F	GASEOUS NITROGEN STORAGE AREA (29112)
G	EXHAUST DUCT
H	LAUNCH PAD (29102)
I	OXIDIZER WASTE CONTAINMENT BASIN
J	OXIDIZER HOLDING AREA (29108)
K	CONTAMINATED OXIDIZER TANK (29107)
L	LIQUID OXYGEN HOLDING AREA (29109)
M	LIQUID HYDROGEN HOLDING AREA (29121)
N	AIR CONDITIONING SHELTER (29123)
O	GAS STORAGE AREA (29122)
P	UMBILICAL TOWER
Q	VAPOR SCRUBBER TANK (29119)
R	FUEL HOLDING AREA (29131)
S	FUEL HOLDING POND (29132)
T	SEWAGE TREATMENT PLANT (29133)
U	POL STORAGE BUILDING (29144)
V	REFRIGERATION BUILDING (29134)

NOTE: REFER TO FIGURE ES-1 FOR GRAPHICAL LEGEND

FIGURE 17-1
TITAN ROCKET PAD-COMPLEX 41
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

CH2M HILL

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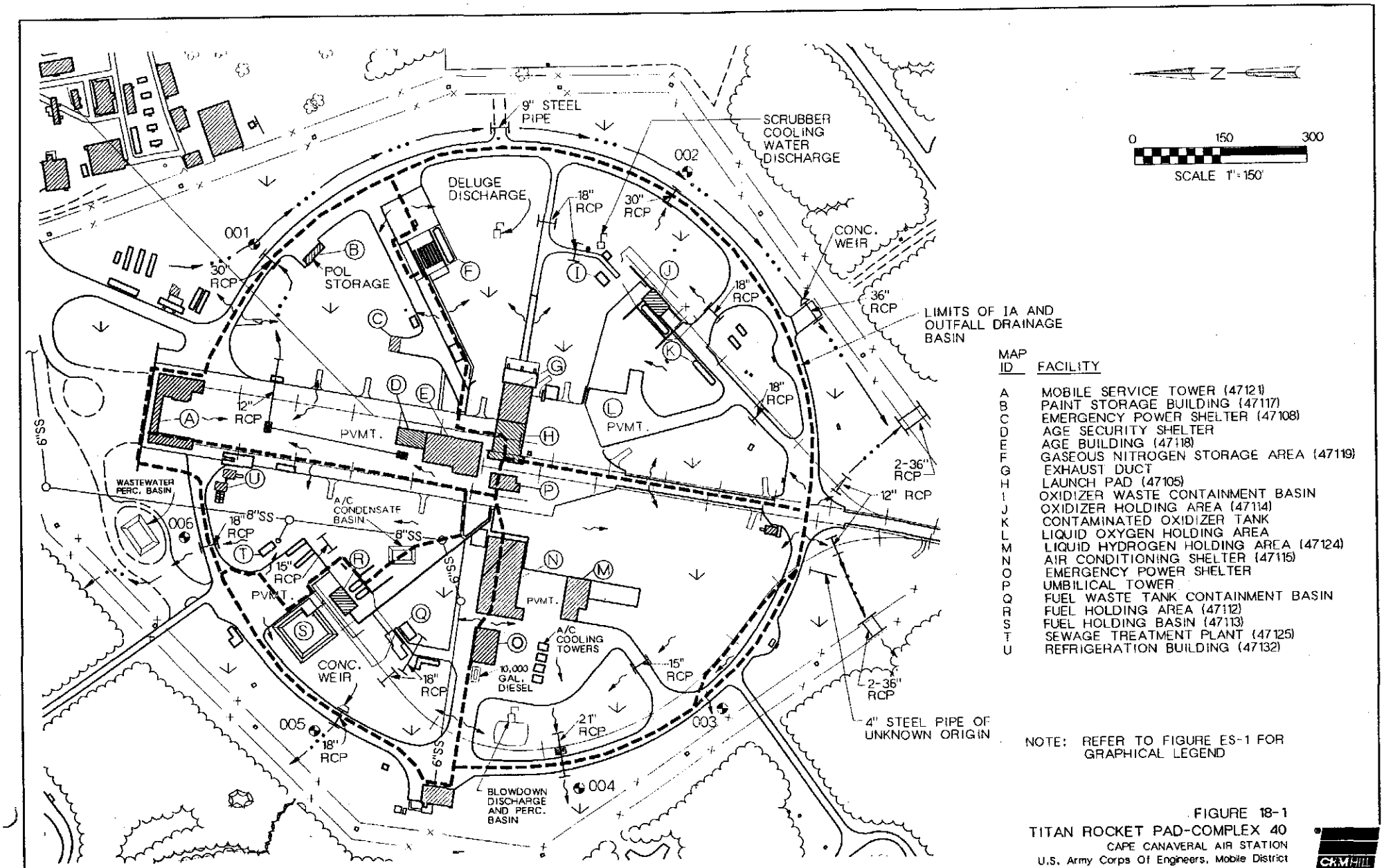


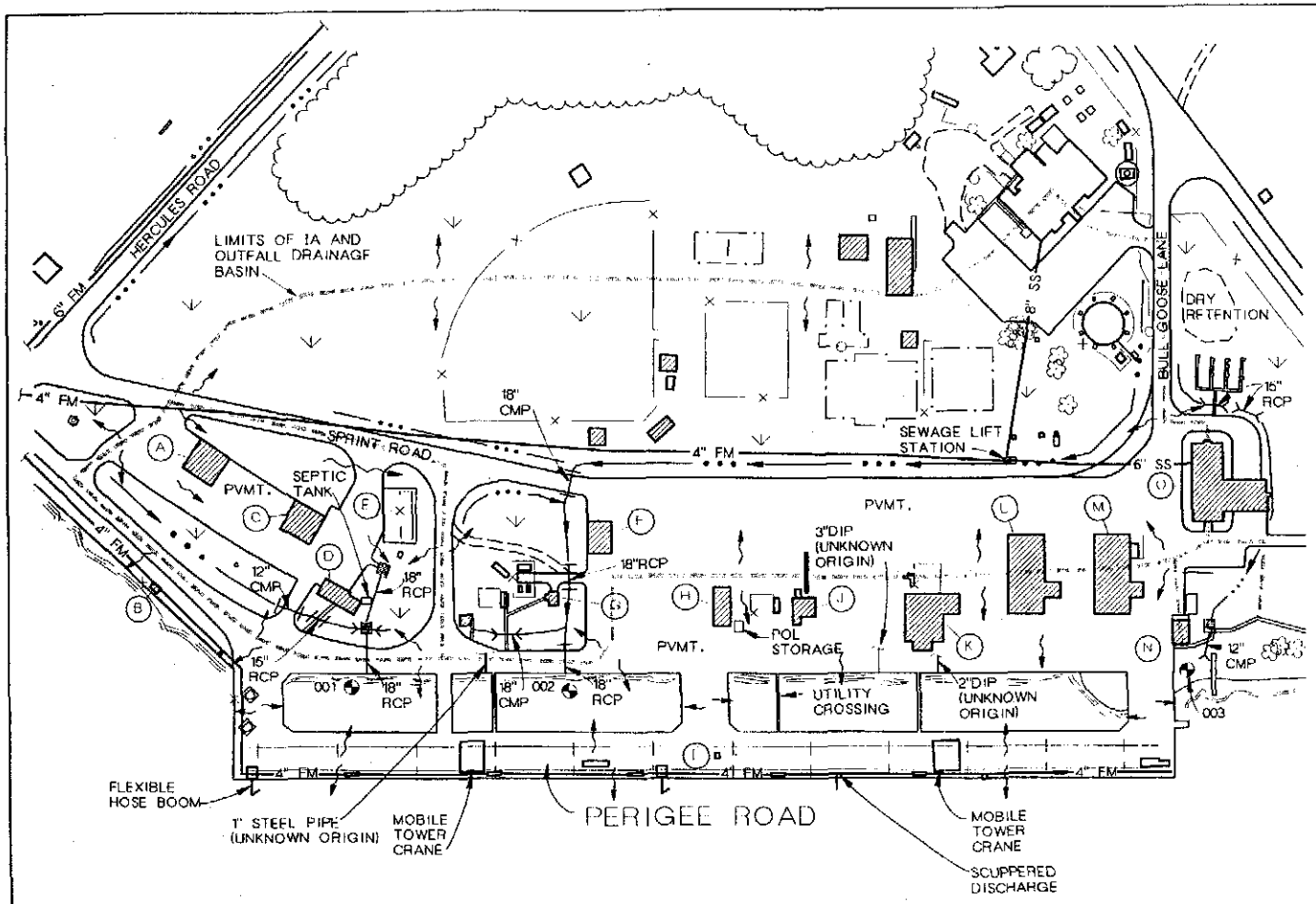
MAP ID	FACILITY
A	MOBILE SERVICE TOWER (47121)
B	PAINT STORAGE BUILDING (47117)
C	EMERGENCY POWER SHELTER (47108)
D	AGE SECURITY SHELTER
E	AGE BUILDING (47118)
F	GASEOUS NITROGEN STORAGE AREA (47119)
G	EXHAUST DUCT
H	LAUNCH PAD (47105)
I	OXIDIZER WASTE CONTAINMENT BASIN
J	OXIDIZER HOLDING AREA (47114)
K	CONTAMINATED OXIDIZER TANK
L	LIQUID OXYGEN HOLDING AREA
M	LIQUID HYDROGEN HOLDING AREA (47124)
N	AIR CONDITIONING SHELTER (47115)
O	EMERGENCY POWER SHELTER
P	UMBILICAL TOWER
Q	FUEL WASTE TANK CONTAINMENT BASIN
R	FUEL HOLDING AREA (47112)
S	FUEL HOLDING BASIN (47113)
T	SEWAGE TREATMENT PLANT (47125)
U	REFRIGERATION BUILDING (47132)

NOTE: REFER TO FIGURE ES-1 FOR GRAPHICAL LEGEND

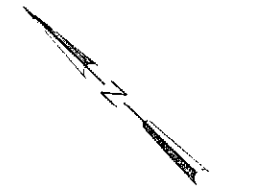
FIGURE 18-1
TITAN ROCKET PAD-COMPLEX 40
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

CKMHILL

1344cc00.dlv



TURNING BASIN



SCALE 1"=150'

MAP ID	FACILITY
A	SUBCABLE STORAGE BLDG. (90418)
B	PAINT STORAGE BLDG. (90525)
C	DASO SUPPORT BLDG. (90518)
D	COMFORT STATION (90520)
E	DASO ORDNANCE STORAGE AREA (90519)
F	CRANE CREW SUPPORT BLDG. (90534)
G	SHOP AIR FACILITY (90530)
H	TRIDENT BACK-FIT STORAGE BLDG. (90516)
I	POLARIS/POSEIDON WHARF (90540)
J	HIGH PRESSURE GAS FACILITY (90550)
K	NAVY SUPPLY FACILITY (1066)
L	ENGINEERING BLDG. (88925)
M	PORT OPERATIONS BLDG. (90305)
N	STORAGE BLDG. (88931)
O	NAVY ADMINISTHATION BLDG. (1064)

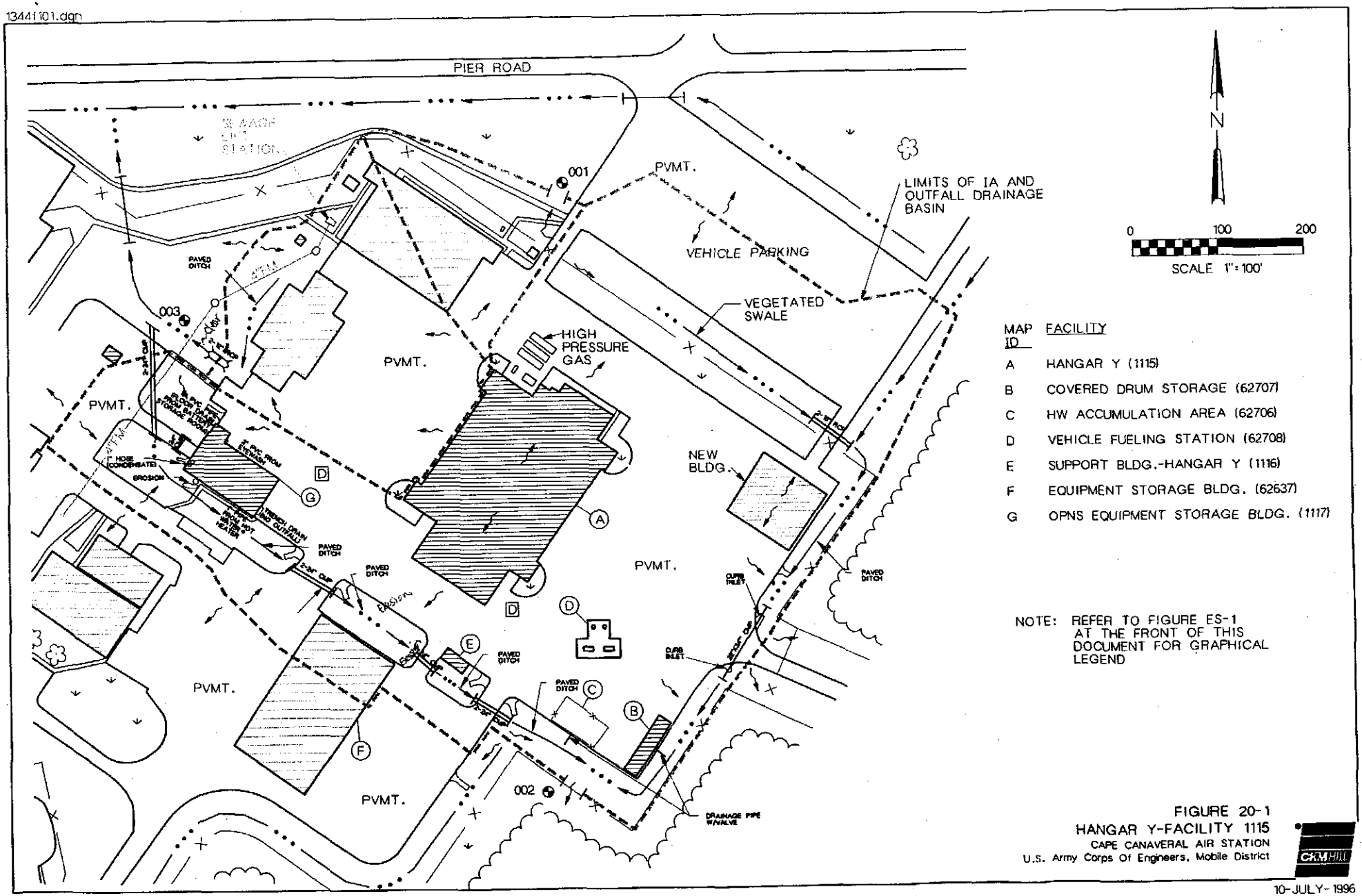
NOTE: REFER TO FIGURE ES-1 FOR GRAPHICAL LEGEND

FIGURE 19-1
POSEIDON WHARF-FACILITY 90540
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

CH2M HILL

1344C001.DLV

13441101.dgn



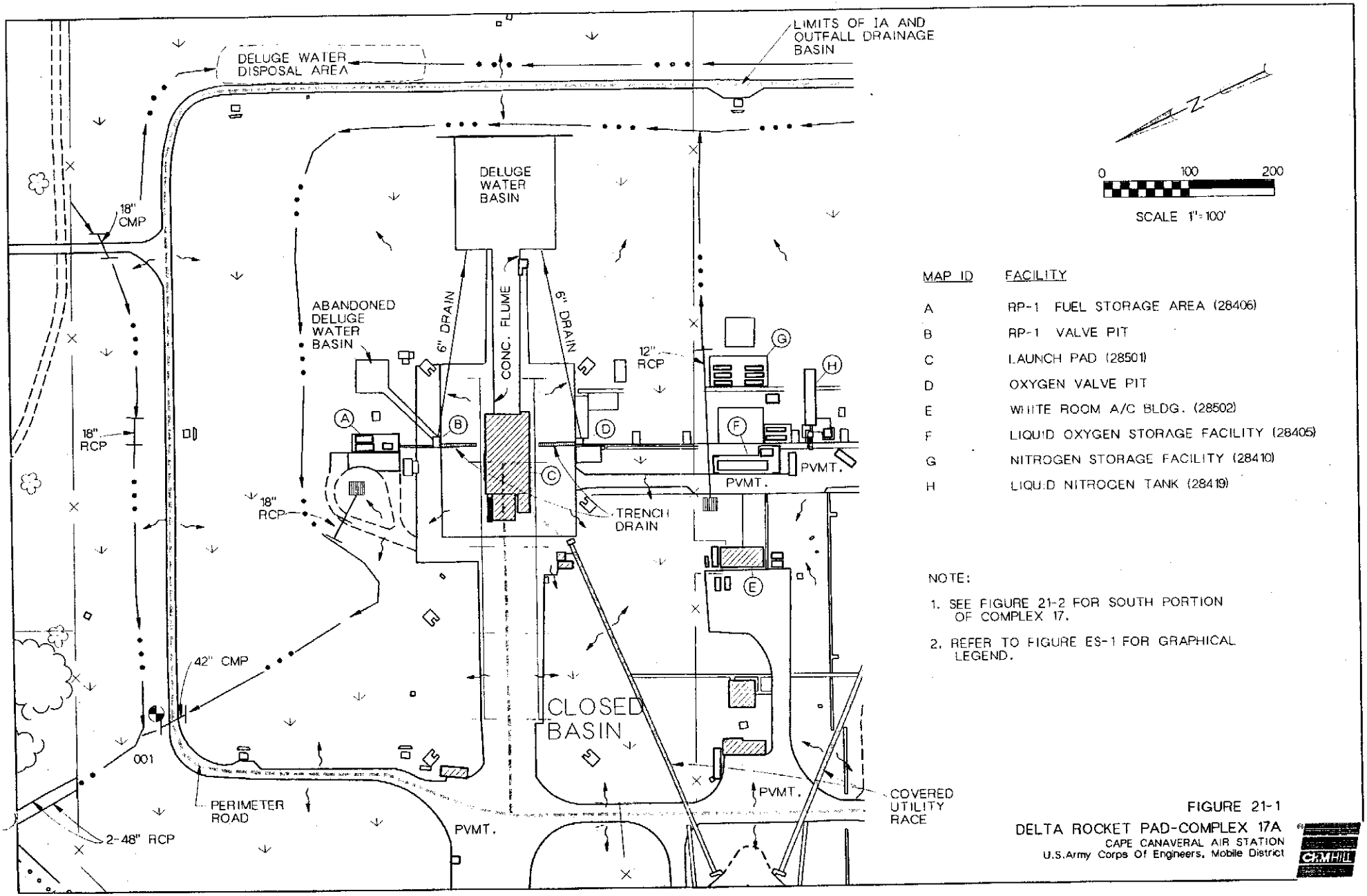
MAP ID	FACILITY
A	HANGAR Y (1115)
B	COVERED DRUM STORAGE (62707)
C	HW ACCUMULATION AREA (62706)
D	VEHICLE FUELING STATION (62708)
E	SUPPORT BLDG.-HANGAR Y (1116)
F	EQUIPMENT STORAGE BLDG. (62637)
G	OPNS EQUIPMENT STORAGE BLDG. (1117)

NOTE: REFER TO FIGURE ES-1 AT THE FRONT OF THIS DOCUMENT FOR GRAPHICAL LEGEND

FIGURE 20-1
HANGAR Y-FACILITY 1115
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

CKM HILL

10-JULY-1996



MAP ID	FACILITY
A	RP-1 FUEL STORAGE AREA (28406)
B	RP-1 VALVE PIT
C	LAUNCH PAD (28501)
D	OXYGEN VALVE PIT
E	WHITE ROOM A/C BLDG. (28502)
F	LIQUID OXYGEN STORAGE FACILITY (28405)
G	NITROGEN STORAGE FACILITY (28410)
H	LIQUID NITROGEN TANK (28419)

NOTE:

1. SEE FIGURE 21-2 FOR SOUTH PORTION OF COMPLEX 17.
2. REFER TO FIGURE ES-1 FOR GRAPHICAL LEGEND.

FIGURE 21-1

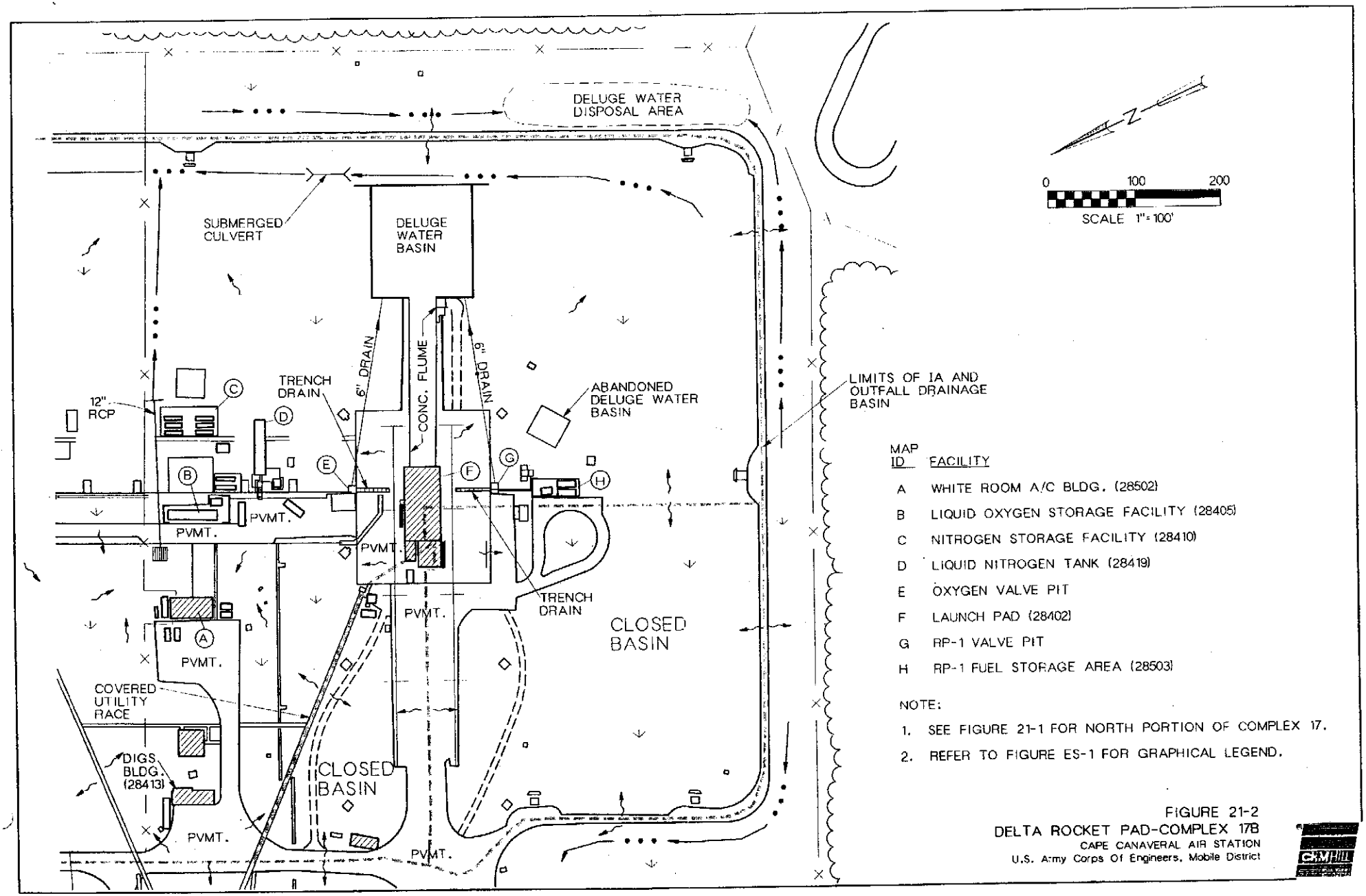
DELTA ROCKET PAD-COMPLEX 17A

CAPE CANAVERAL AIR STATION

U.S.Army Corps Of Engineers, Mobile District

CH2MHILL

1344CL02.DLV



MAP ID	FACILITY
A	WHITE ROOM A/C BLDG. (28502)
B	LIQUID OXYGEN STORAGE FACILITY (28405)
C	NITROGEN STORAGE FACILITY (28410)
D	LIQUID NITROGEN TANK (28419)
E	OXYGEN VALVE PIT
F	LAUNCH PAD (28402)
G	RP-1 VALVE PIT
H	RP-1 FUEL STORAGE AREA (28503)

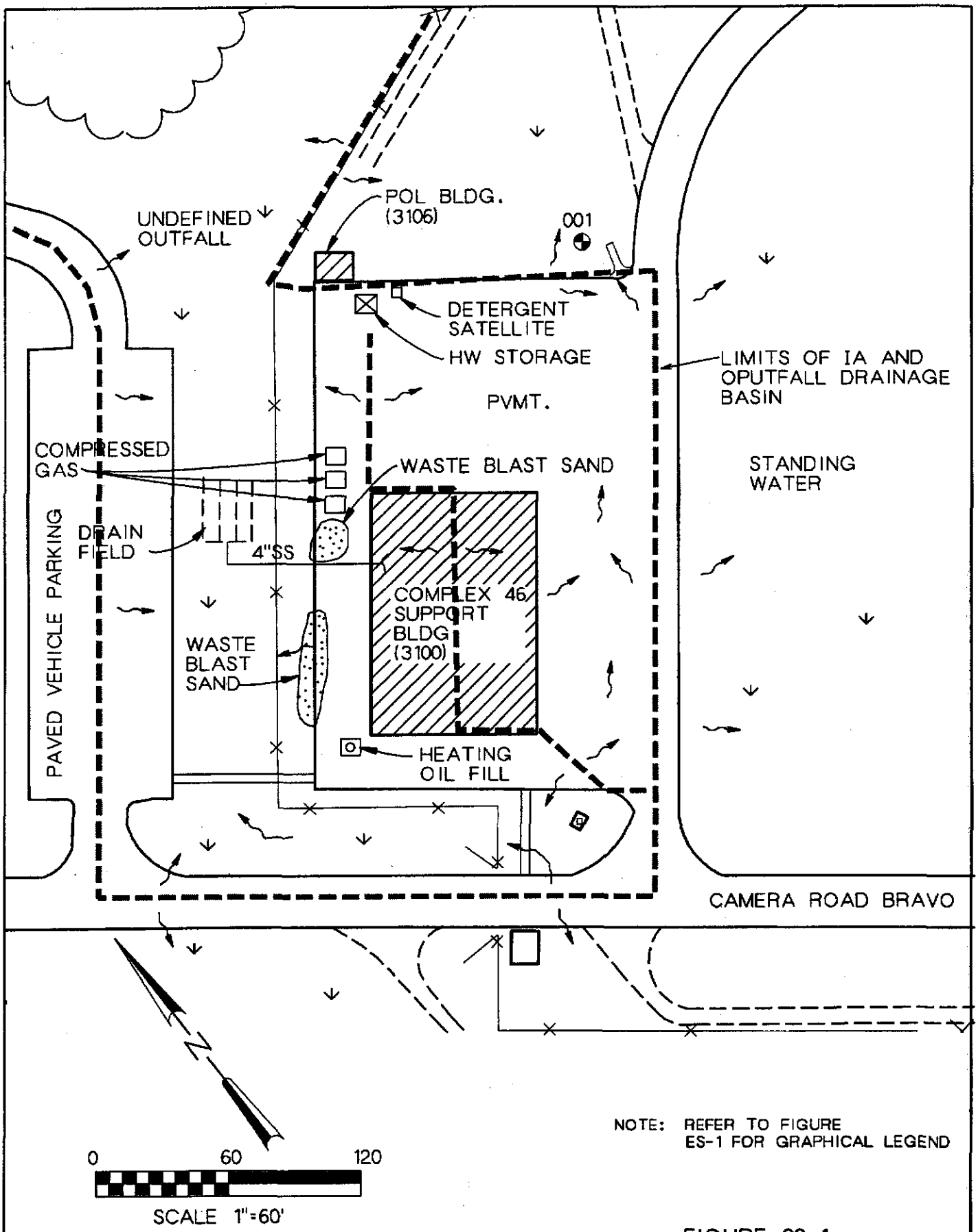
NOTE:

1. SEE FIGURE 21-1 FOR NORTH PORTION OF COMPLEX 17.
2. REFER TO FIGURE ES-1 FOR GRAPHICAL LEGEND.

FIGURE 21-2
DELTA ROCKET PAD-COMPLEX 17B
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

CH2MHILL

xxxxxxxx.xx



NOTE: REFER TO FIGURE ES-1 FOR GRAPHICAL LEGEND

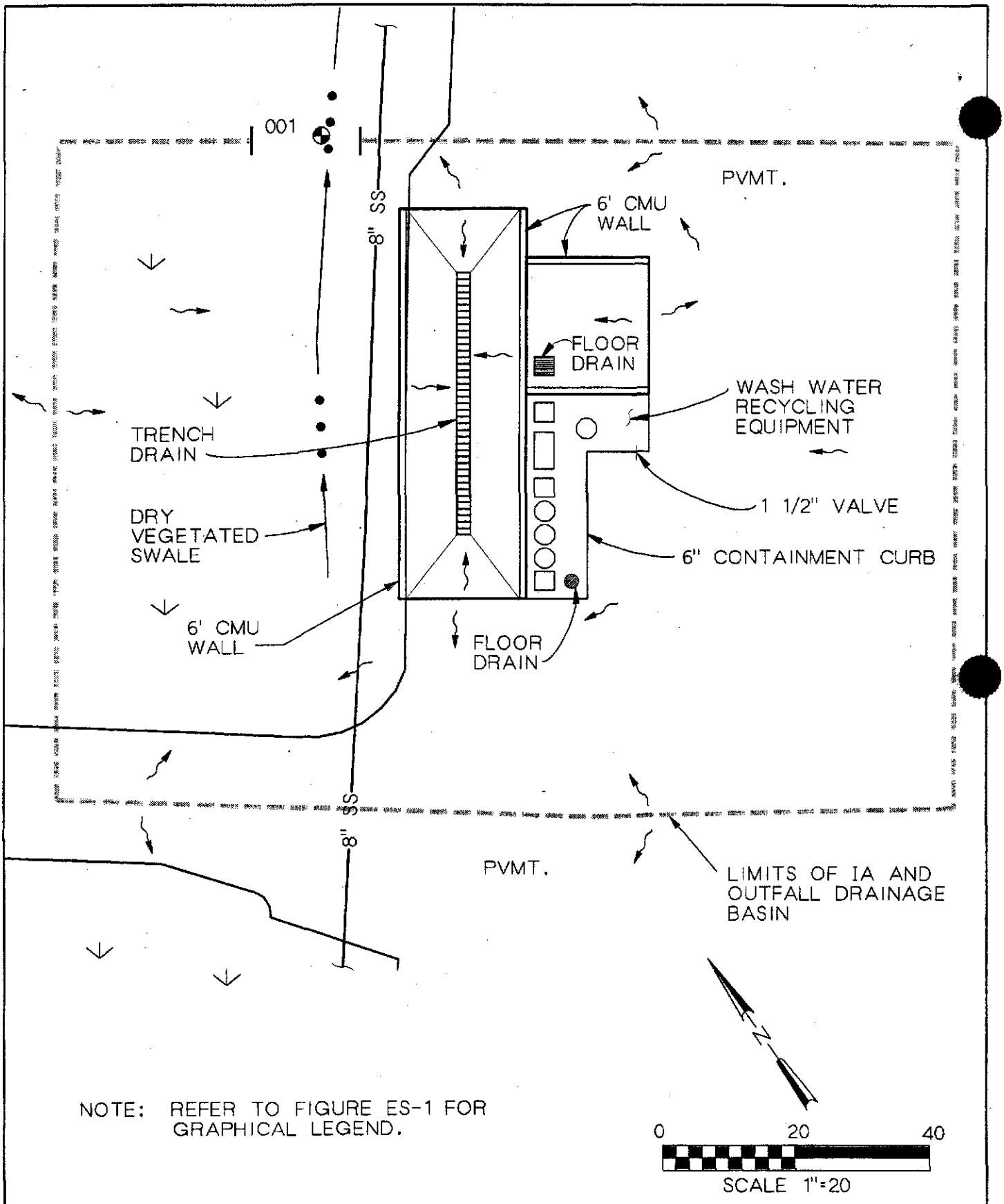
FIGURE 22-1

COMPLEX 46 SUPPORT BLDG.-FACILITY 3100

CAPE CANAVERAL AIR STATION

U.S. Army Corps Of Engineers, Mobile District

1344ck00.dlv



NOTE: REFER TO FIGURE ES-1 FOR GRAPHICAL LEGEND.

FIGURE 23-1
VEHICLE WASH FACILITY-FACILITY 49760
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

CH2M HILL

1344ci1b.dlv

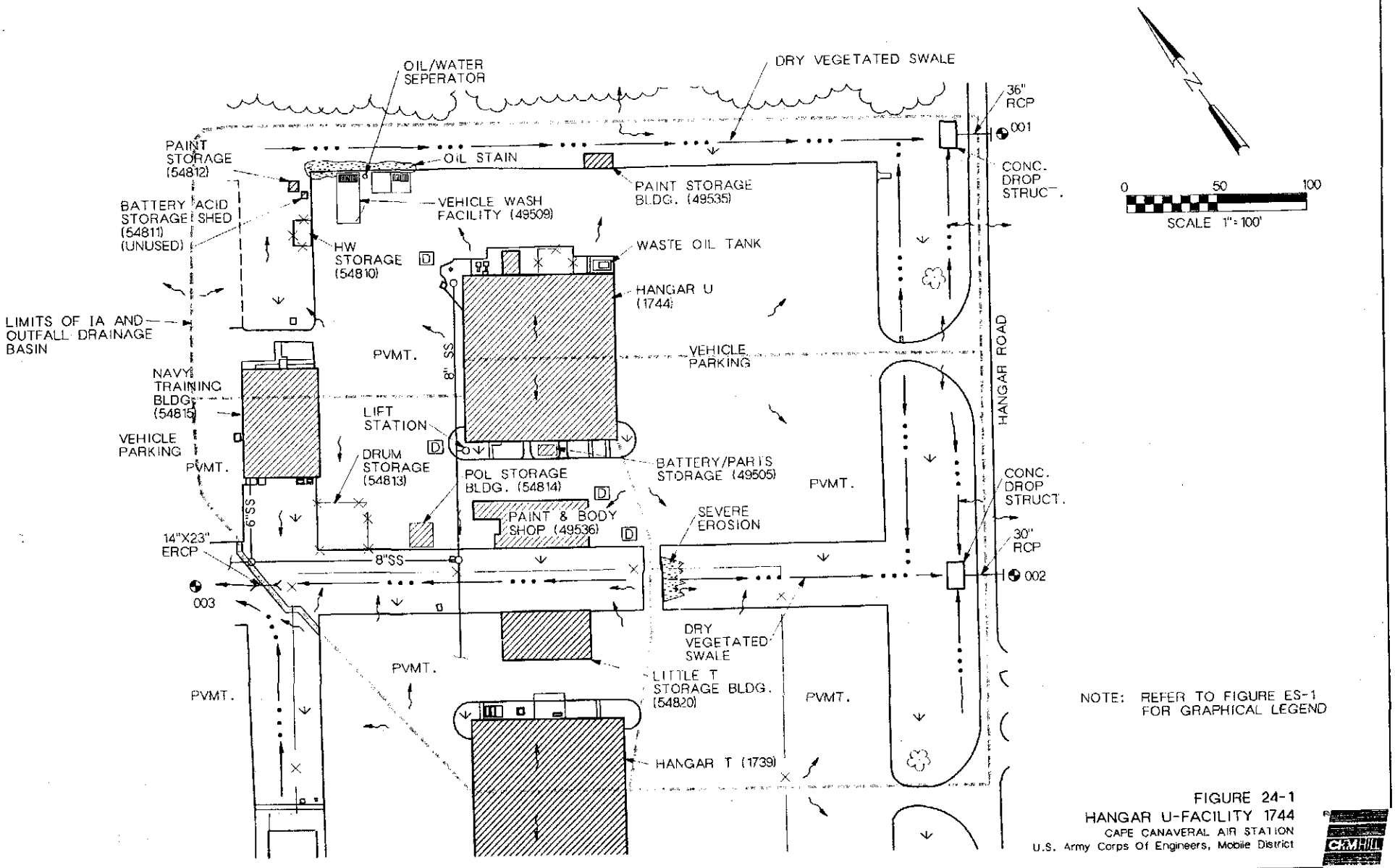


FIGURE 24-1
HANGAR U-FACILITY 1744
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

1344ci1a.div

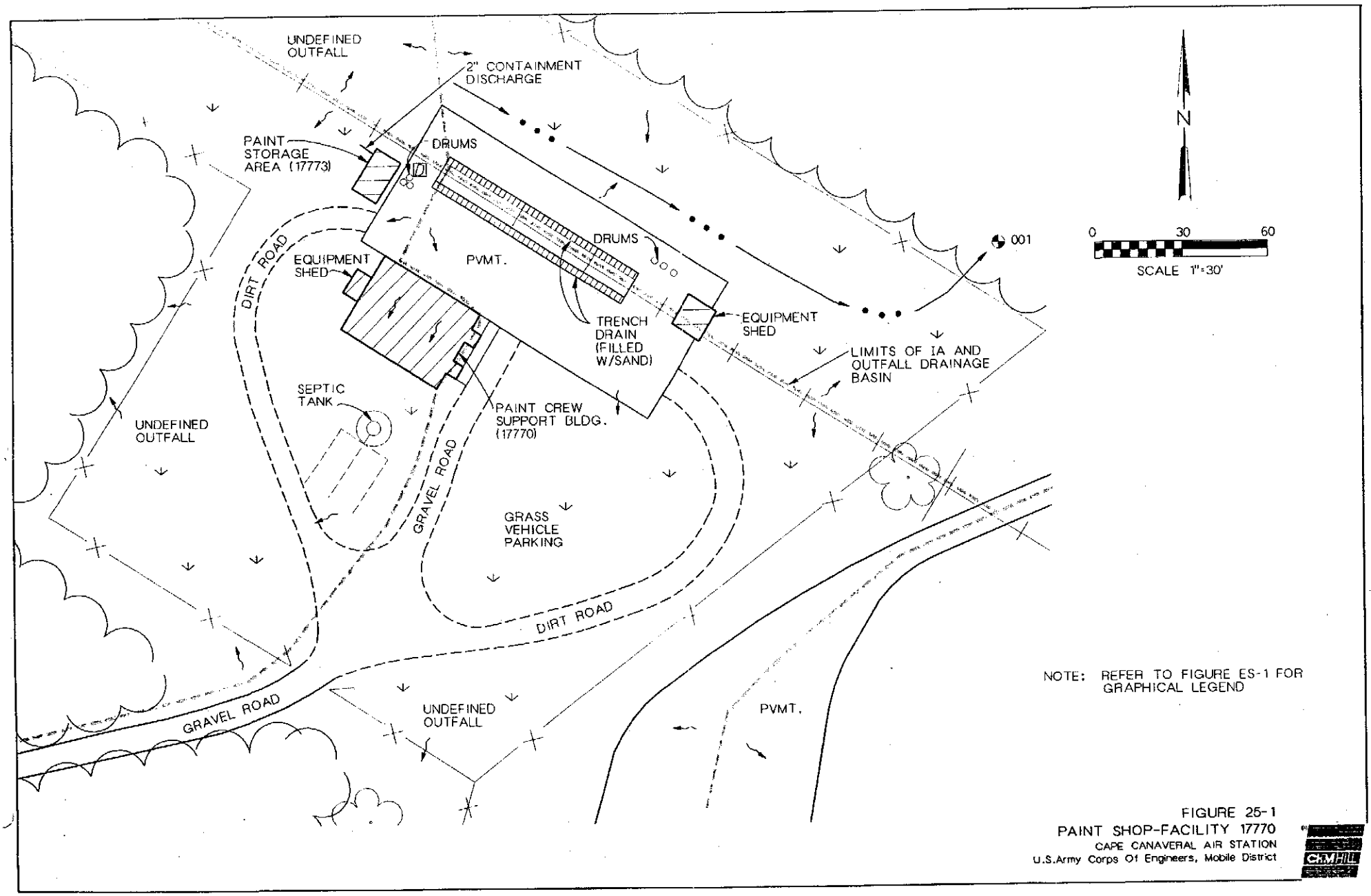


FIGURE 25-1
PAINT SHOP-FACILITY 17770
CAPE CANAVERAL AIR STATION
U.S.Army Corps Of Engineers, Mobile District

CH2MHILL

1344cl01.div

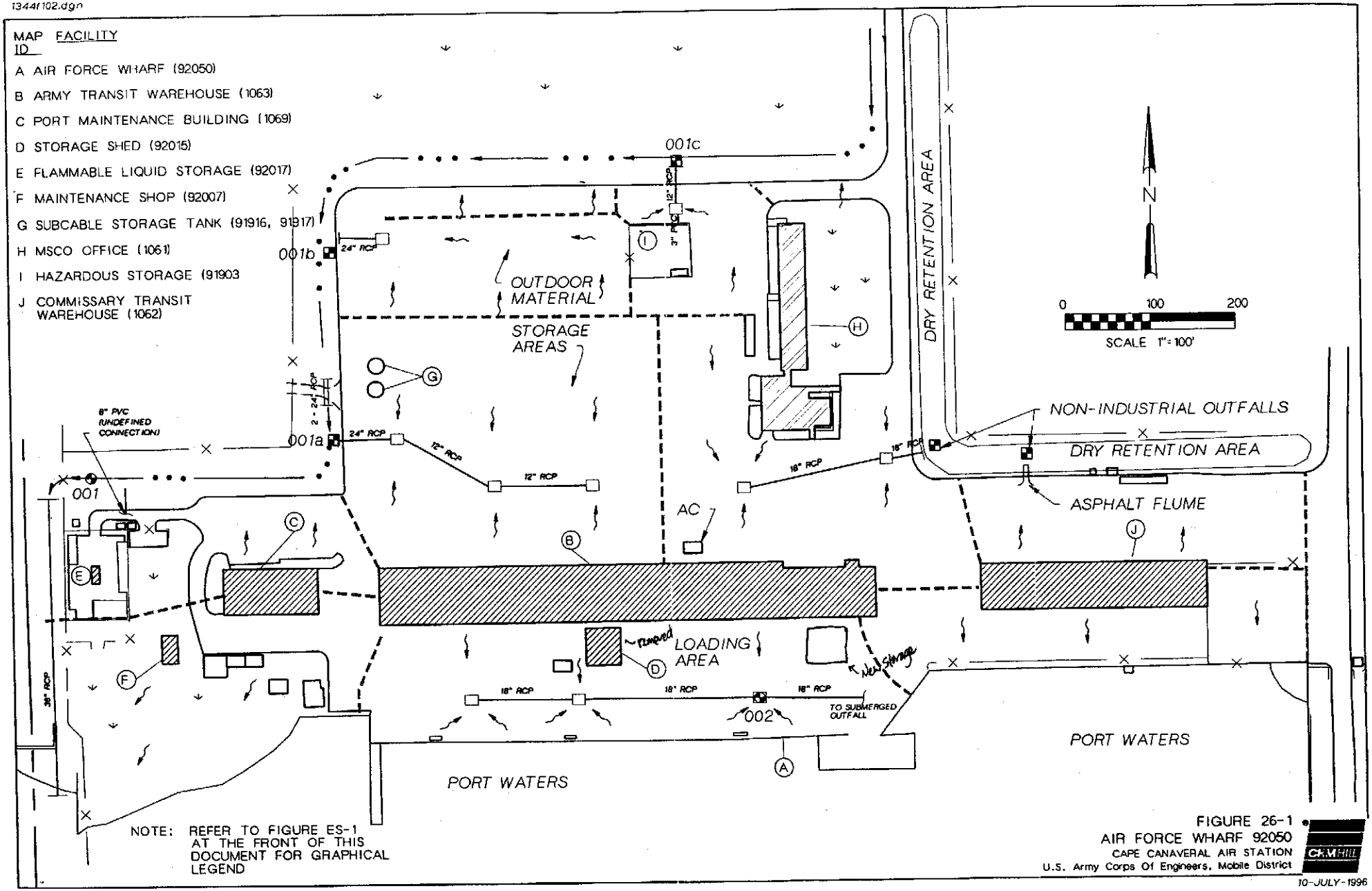


FIGURE 26-1
AIR FORCE WHARF 92050
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District
CH2MHILL
10-JULY-1996

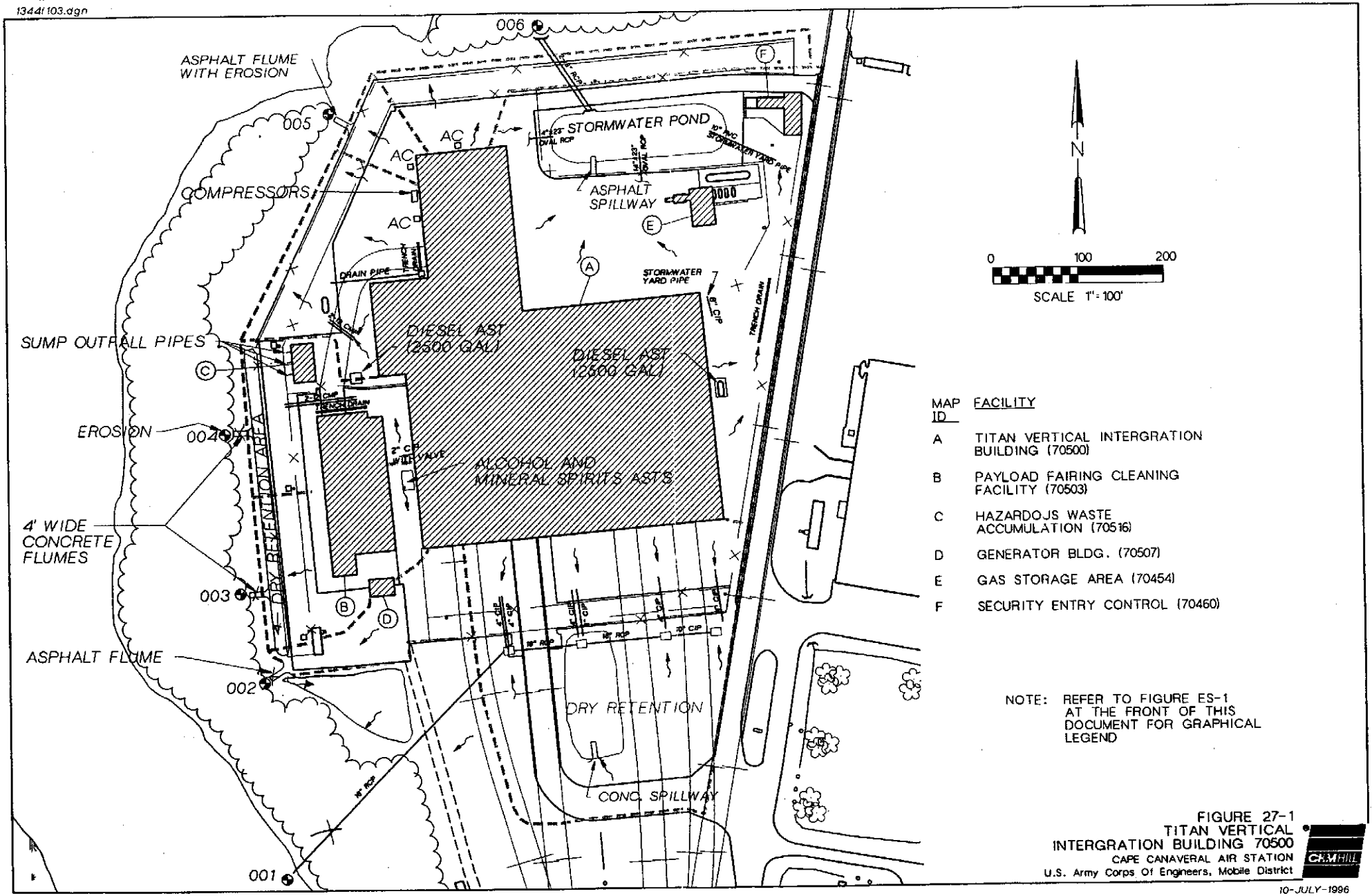
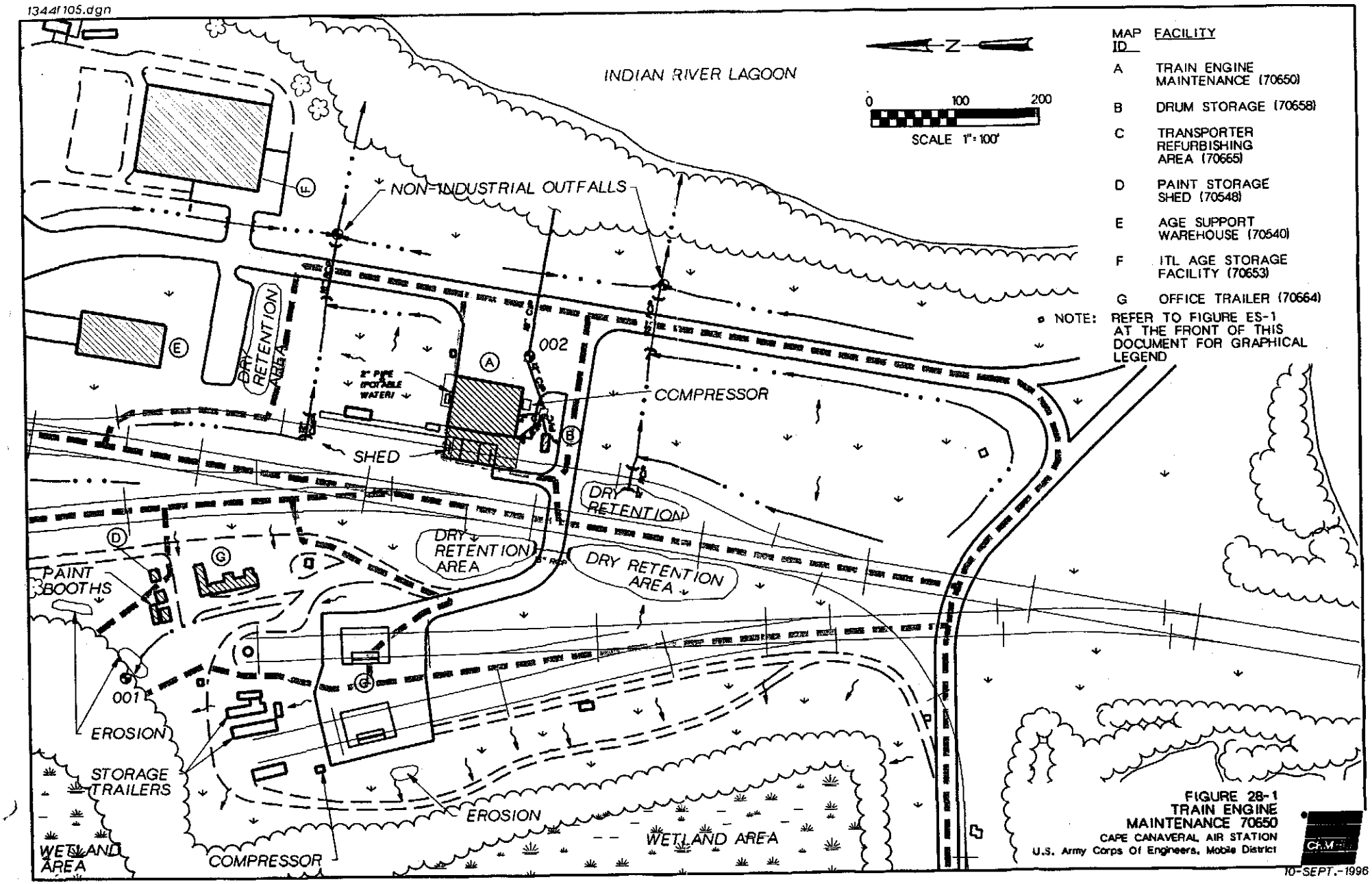


FIGURE 27-1
TITAN VERTICAL
INTERGRATION BUILDING 70500
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

CH2MHILL

10-JULY-1996


1344f105.dgn
INDIAN RIVER LAGOON
N
0
100
200
SCALE 1"=100'
MAP ID
FACILITY
A TRAIN ENGINE MAINTENANCE (70650)
B DRUM STORAGE (70658)
C TRANSPORTER REFURBISHING AREA (70665)
D PAINT STORAGE SHED (70548)
E AGE SUPPORT WAREHOUSE (70540)
F ITL AGE STORAGE FACILITY (70653)
G OFFICE TRAILER (70664)
NOTE: REFER TO FIGURE ES-1 AT THE FRONT OF THIS DOCUMENT FOR GRAPHICAL LEGEND
NON-INDUSTRIAL OUTFALLS
002
DRY RETENTION AREA
2" PIPE (POTABLE WATER)
COMPRESSOR
SHED
DRY RETENTION
DRY RETENTION AREA
DRY RETENTION AREA
PAINT BOOTHS
001
EROSION
STORAGE TRAILERS
WETLAND AREA
COMPRESSOR
EROSION
WETLAND AREA
FIGURE 28-1
TRAIN ENGINE MAINTENANCE 70650
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District
CH2M
10-SEPT.-1996

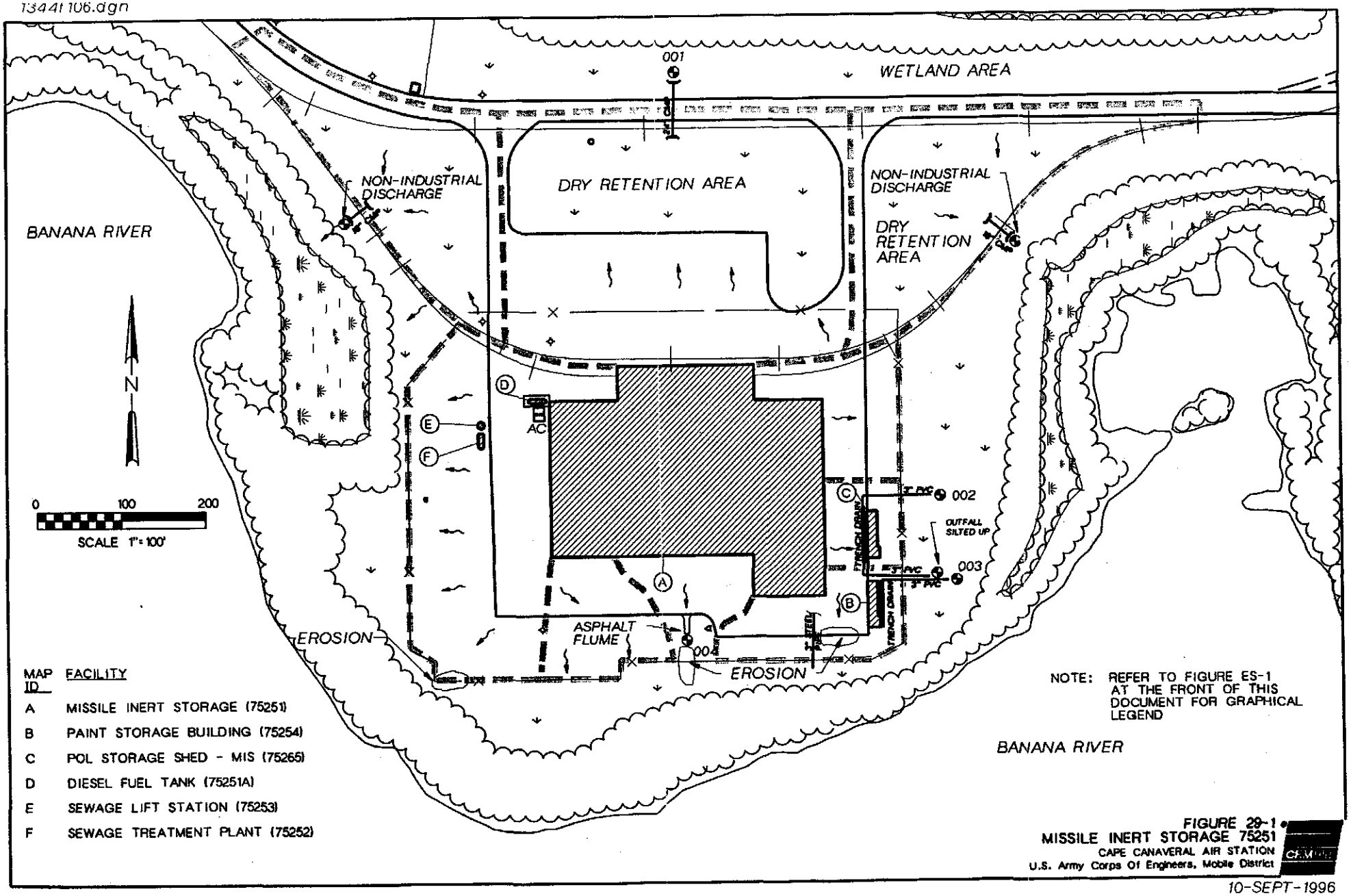


FIGURE 29-1
MISSILE INERT STORAGE 75251
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

10-SEPT-1996

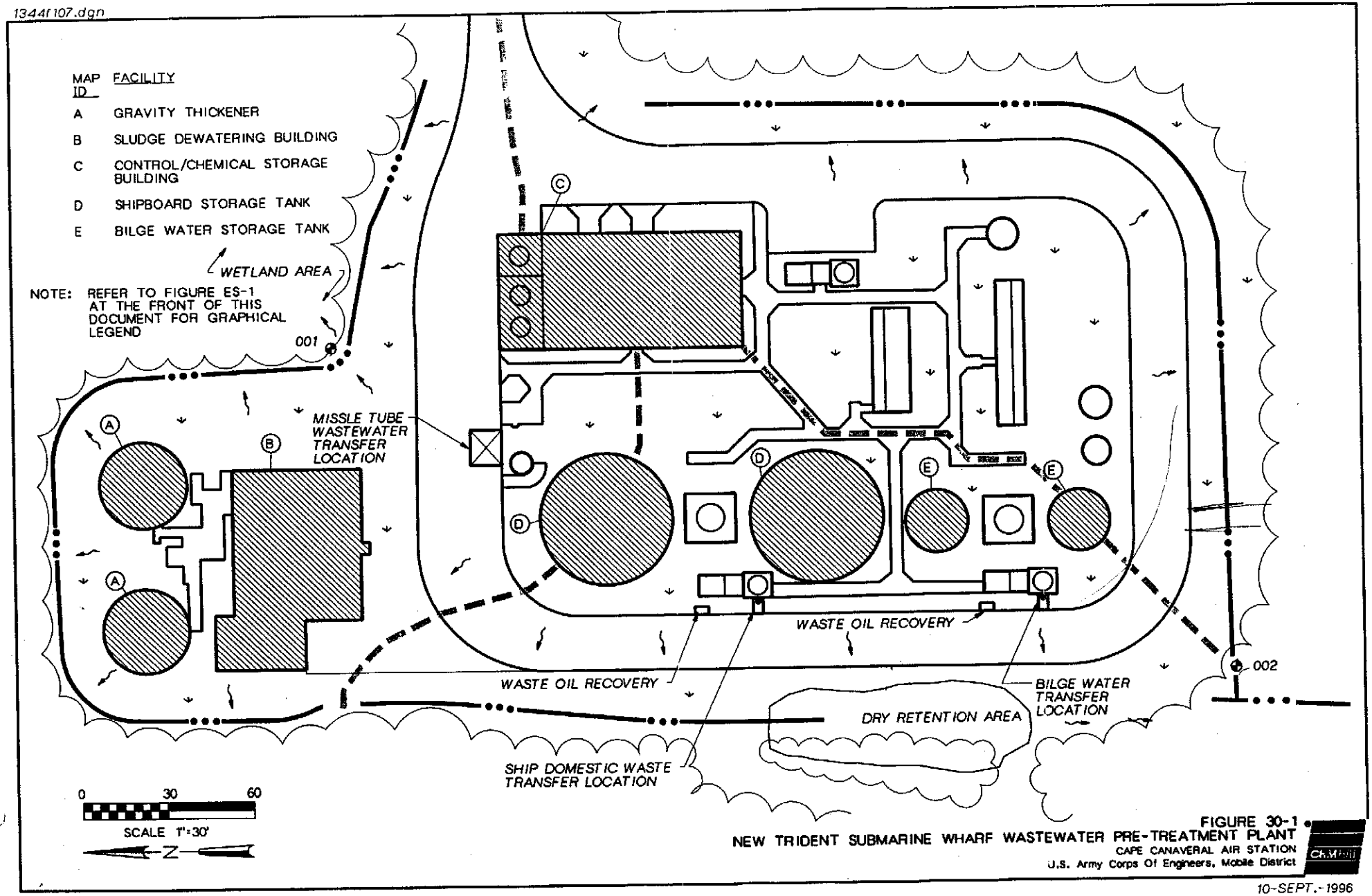


FIGURE 30-1
NEW TRIDENT SUBMARINE WHARF WASTEWATER PRE-TREATMENT PLANT
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

10-SEPT.-1996

13441108.dgn

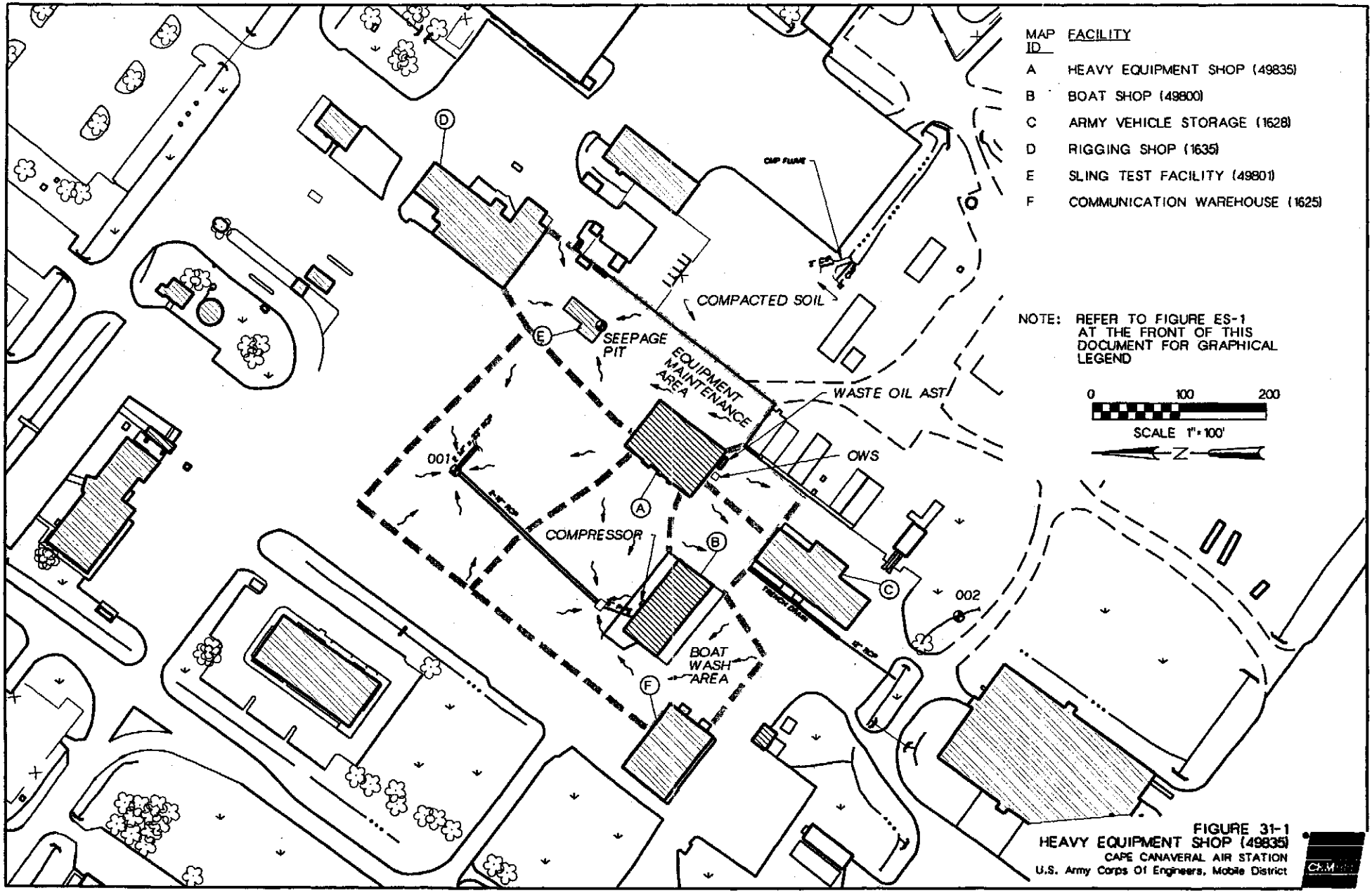


FIGURE 31-1
HEAVY EQUIPMENT SHOP (49835)
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

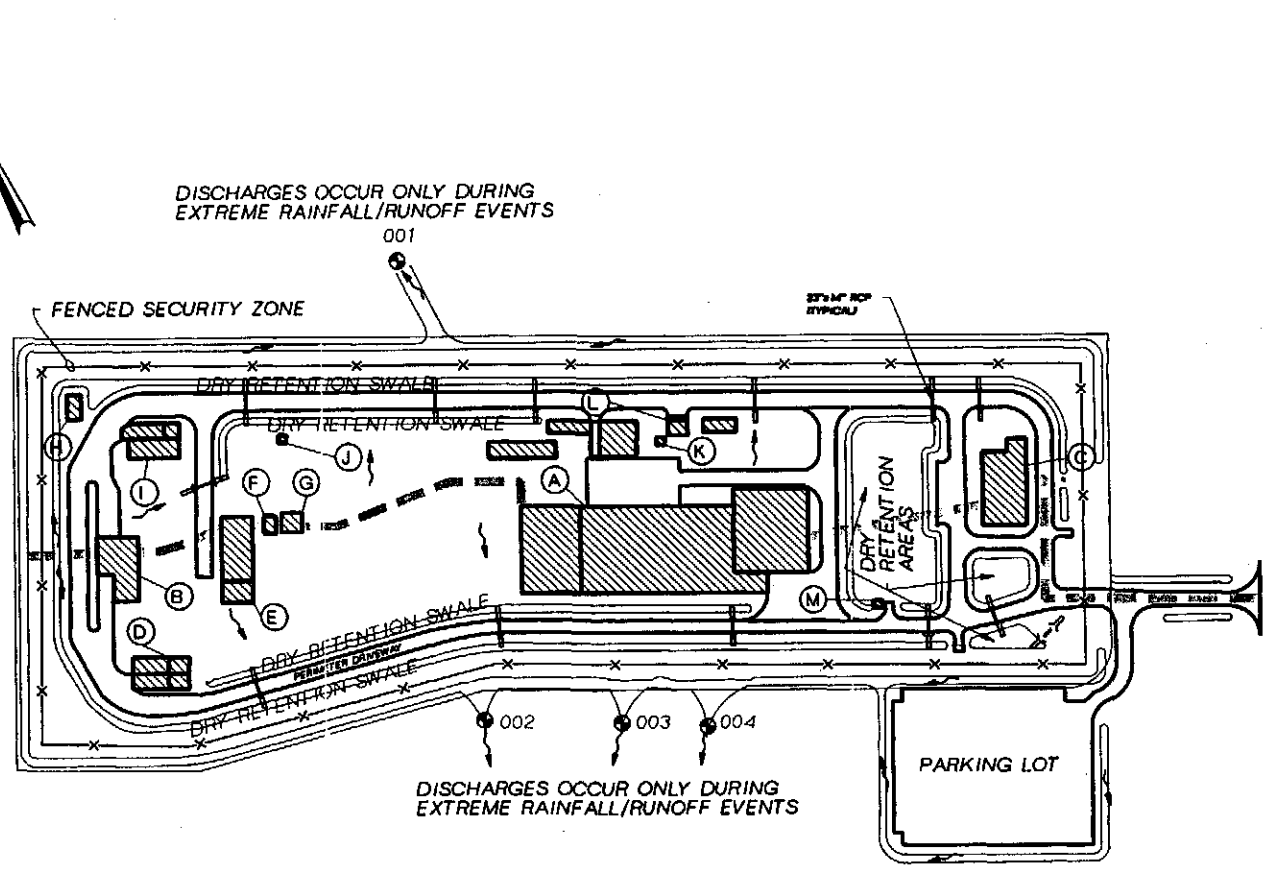
10-SEPT.-1996

1344f109.dgn

0 200 400

SCALE 1"=200'

MAP ID	FACILITY
A	CENTAUR PROCESSING BUILDING (CPB)
B	CRYOGENIC TANKING CELLS (CTC)
C	OPERATIONS SUPPORT BUILDING (OSB)
D	LH_2 STORAGE
E	CHILLER AREA
F	FUEL OIL STORAGE AREA
G	ELECTRICAL SUBSTATION & GENERATOR BUILDING
H	CTC AIR INTAKE
I	LO_2 STORAGE
J	EMERGENCY COLLECTION SYSTEM
K	FUEL OIL STORAGE AREA
L	CPB GENERATOR BUILDING
M	PAINT, OIL, & LUBE STORAGE



NOTE: REFER TO FIGURE ES-1 AT THE FRONT OF THIS DOCUMENT FOR GRAPHICAL LEGEND

FIGURE 32-1
CENTAUR PROCESSING FACILITY
CAPE CANAVERAL AIR STATION
U.S. Army Corps Of Engineers, Mobile District

10-SEPT.-1996

APPENDIX D—REPRESENTATIVE TANK ACTION ITEM LIST
(SEE TANK CUSTODIAN FOR UPDATED LIST)

PROCEDURES FOR OPERATION AND MAINTENANCE OF SECONDARY CONTAINMENT FOR ABOVEGROUND STORAGE TANK SYSTEMS (ASTs)

1. All ASTs must be located in an impervious secondary containment capable of holding at least 110 percent of the volume of the largest tank in the containment.

2. The diked area must be constructed with a means to drain off rainwater but to prevent spills or leaks from reaching the ground.

3. Diked areas may be emptied by pumps, ejectors, or a restraining valve; however, each of these must be manually activated. All containments are drained by a restraining valve.

4. All valves should be a manual, lockable, open and closed design. Flapper-type drain valves are prohibited.

5. Valves must remain in a locked closed position except when the facility manager or his/her designee is in the process of draining water from the area. Valves must be inspected before and after each use to ensure they are not leaking.

6. Prior to discharging liquid from a containment system, the water should be inspected for visible signs of leaks or spills from the tank.
   - If a sheen is not present and there is no other evidence of spills or leaks, the retained water can be drained to grade. Immediately after draining, the valve must be closed and locked.
   - If a sheen or floating fuel is present, this water must be treated as a waste. A sheen can be removed with sorbent pads; the pads should be handled as petroleum-contaminated waste. If 1/10 inch or more floating fuel is present, it must be skimmed or pumped off and disposed as waste fuel.

7. Containment areas should be drained after each rainfall. Regulations require that accumulated stormwater shall be drawn off within one week of a rainfall event. A log/record of each draining event must be kept and should include the location, date, time, and confirmation as to whether the rain drain was open or closed, personnel who performed the draining, verification of a sheen or not, and any measures taken to address a sheen if present. Draining must be performed under responsible supervision.

8. Containment areas must be inspected at least once a month to ensure they are not leaking and are properly sealed.

9. During normal operations, if a spill or leak occurs within the diked area, the petroleum product must be appropriately cleaned up to prevent a sheen after the next rainfall.

10. If deficiencies are noted during inspections of containment systems, work orders should be submitted by the facility manager.

SECONDARY CONTAINMENT RAINWATER DRAINAGE LOG

Facility #_____

Date	Presence of a Sheen		Method of Product Removal (if necessary)	Verify valve is	Verify valve is	Inspector's Signature
	Yes	No		Closed	Locked	

Notes:

_____

_____

_____

APPENDIX E - INSPECTION CHECKLISTS AND PROCEDURES

PATRICK AIR FORCE BASE SBSS Contractor SPECIAL OPERATING INSTRUCTIONS CHECKLIST 23.05 CL	Page 1 of 3	File FMOI 23-1 23.05 CL
	Revises 13 MAY 97	Eff Date 25 AUG 99
	Approvd PMO	
	Approvd SBSS Contractor/LGS	
	Approvd 45 SUPP/LGS	

ATTACHMENT 5
FUEL TRANSFER CHECKLIST

1. Do not fuel or defuel aircraft while engines are running or are being warmed by external heat.
2. Do not fuel or defuel any aircraft inside any building.
3. Do not fuel or defuel aircraft while passengers are on board unless a passenger boarding device is in place at the cabin door of aircraft.
4. Do not allow repairs to aircraft during defueling or refueling.
5. Do not switch any electrical appliances on or off during refueling or defueling.
6. Do not drive the refueler in reverse unless a "spotter" is guiding the backing operation.
7. Do not operate a fueling vehicle on a taxiway or runway, unless authorized by airfield management.
8. Park fuel trucks at least twenty-five (25) feet of center from each other.
9. Do not fuel or defuel any aircraft during a thunderstorm or lightning activity within five (5) miles.
10. Do not carry lighters or matches on your person while performing fuel servicing operations.
11. Do not operate a radio transmitter or receiver during refueling or defueling operations, unless radio has been certified intrinsically safe.
12. Clean up fuel spills immediately by using sand, absorbent booms, sweeps, pads, blankets, and pillows, or other approved equipment.
13. Do not perform fueling operations or start aircraft engines within fifty (50) feet of a fuel spill or other volatile fluids that are on the ground.
14. Follow all applicable technical data, locally developed checklists, and fuel operating instructions (FOI).

FUEL TRANSFER CHECKLIST

NOTE

Ensure that the receiving tank has sufficient ullage to accommodate the amount of fuel scheduled for transfer.

1. Prior to beginning a fuel transfer operation, ensure that ALL storage system issues and receiving line valves are in the CLOSED position.

2. Ensure that spark or flame producing devices are not allowed in the area,

3. Notify the Fuels Control Center that a fuel transfer operation is about to begin.

4. Coordinate with the Operations Supervisor to be sure that the issue and receiving tanks are known to all personnel involved in the transfer, and ensure there is no conflict or misunderstanding.

5. Utilize the attached valve sequence chart to open the proper valves to direct the fuel flow from the issue tank to the receiving tank.

6. Both operators involved in the transfer operation will check the valve alignment and verify that only the correct valves have been opened. This step will be accomplished independent of one another.

7. At the issue tank or pumphouse, turn the main electrical circuit breaker or pump starter motor switch to the ON position.

8. Use intrinsically safe hand held portable radios to signal start or stop commands if line of sight observation is not possible. One radio must be available for use to advise the Fuels Control Center in event of a personal injury or fuel spill.

9. The operator at the issue tank or in the pumphouse turns the electric switch for the transfer pump to the ON position.

10. During fuel transfer, operators will check the pumphouse(s) for mechanical failure, leaks, or any other equipment/component problem. (See Emergency Shutdown Procedures.)

11. The operator at the receiving tank will inform the other operator when to stop the transfer operation, either by radio call or by prearranged visual signal.

12. The operator at the issue tank or the pumphouse turns the electric pump switch for the transfer pump to the OFF position.

13. Place the circuit breaker or the pump starter motor switch in the OFF position.

14. Return all open valves to the CLOSED position.

15. Notify the Fuels Control Center that the transfer operation has been completed.

WARNING

A minimum waiting time of 30 minutes after completion of a fuel transfer operation is required before insertion of any object into the storage tank(s). This safety measure permits a relaxation of electrostatic charges.

EMERGENCY SHUTDOWN PROCEDURES

Stop the pump by placing the pumphouse circuit breaker in the OFF position and/or push the button on any emergency switch to deactivate the area's electrical system. If conditions warrant, call the Base Fire Department (911), evacuate the area.

FUEL SPILL PROCEDURES

In the event of a fuel spill, take the following actions:

1 .Stop the pump at the issuing pumphouse.
2. Close ALL valves opened for the transfer, if possible.
3. Push the button on any emergency switch to deactivate the area's electrical system. 4. Evacuate the area.
5. Notify the Fuels Control Center, giving particulars about the spill.

6. Await Fire Department and Spill Response Team; render all possible assistance.

VALVE SEQUENCE CHART

JP-8-S FUEL STORAGE AREA #1

INTERTANK TRANSFER

BETWEEN TANK NO.'S	OPEN VALVES	BETWEEN TANK NO.'S	OPEN VALVES
662-665	28-34-29-47-48-26	663-662	17-21-33-47-48-27
662-666	28-34-47-48-25	663-664	17-21-44-45-15
662-663	28-34-33-44-45-16	663-665	17-21-33-47-48-26
662-664	28-34-33-44-45-15	663-666	17-21-33-47-48-25
662-667	28-34-11-41-42.4	663-667	17-21-11-41-42-4
662-662	29-34-47-48-27	664-662	18-21-33-47-48-27
662-666	29-34-47-48-25	664-663	18-21-44-45-16
662-663	29-34-33-44-45-16	664-665	18-21-33-47-48-26
662-664	29-34-33-44-45-15	664-666	18-21-33-47-48-25
662-667	29-34-33-11-41-42-4	664-667	18-21-11-41-42-4
662-662	30-34-47-48-27	667-664	7-10-11-44-45-15
662-665	30-34-47-48-26	667-663	7-10-11-44-45-16
666-663	30-34-44-45-16	667-662	7-10-11-33-47-48-27
666-664	30-34-44-45-15	667-665	7.10-11-33-47-48-26
666-667	30-34-11-41-42-4	667-666	7.10-11-33-47-48-25

JPTS STORAGE SYSTEM

INTERTANK TRANSFER

BETWEEN TANK N O.'S	THRU WEST PUMP	THRU EAST PUMP
626-633	3-15-11-19-9-16-18-20-21-27-28	3-4-2-18-20-21-27-28
626-634	3.15-11-19-9-16-18-20-21-24-25	3-4-2-18-20-21-24-25
633-626	10-11-19-9-16-18	10-15-4-2-18
633-634	10-11.19-9-16-18-20-21-24-25	10- 15-4-2-16-17-21-24-25
634-626	26-11-19-9-16-18	26-15-4-2-18
634-633	26-11-19-9-16-18-20-21-27-28	26-15-4.2-16-17-21-27-28

VALVE SEQUENCE CHART

FUEL STORAGE AREA #2

INTERTANK TRANSFER

BETWEEN TANK NO.'S	OPEN VALVES	BETWEEN TANK NO.'S	OPEN VALVES	BETWEEN TANK NO.'S	OPEN VALVES
611-612	24-28-15-20	614-611	22-28,15-19	619-621	6-60-8-3-4
611-613	24-28-15-18	614-612	22-28-15-20	621-619	7-59-8-3-5
611-614	24-28-15-21	614-613	22-28-15-18	616-618	40-44-35-37
611-615	24-28-15-17	614-615	22-28-15-17	616-620	40-44-35-38
611-617	24-28-15-16	614-617	22-28-15-16	616-622	40-44-35-39
612-61	23-28-15-19	615-611	26-62-28-15-19	618-616	41-44-35-36
612-613	23-28-15-18	615-612	26-62-28-15-20	618-620	41-44-35-38
612-614	23-28-15-21	615-613	26-62-28-15-18	618-622	41-44-35-39
612-615	23-28-15-17	615-614	26-62-28-15-21	620-616	42-44-35-36
612-617	23-28-15-16	615-617	26-62-28-15-16 1	620-618	42-44-35-37
613-611	25-28-15-19	617-611	27-61-28-15-19	620-622	42-44-35-39
613-612	25-28-15-20	617-612	27-61-28-15-20	622-616	43-44-35-36
613-614	25-28-15-21	617-613	27-61-28-15-18	622-618	43-44-35-37
613-615	25-28-15-17	617-614	27-61-28-15-21	622-620	43-44-35-38
613-617	25-28-15-16	617-615	27-61-28-15-17		

PROCEDURES FOR OPERATION AND MAINTENANCE OF SECONDARY CONTAINMENT FOR ABOVEGROUND STORAGE TANK SYSTEMS (ASTs)

1. All ASTs must be located in an impervious secondary containment capable of holding at least 110 percent of the volume of the largest tank in the containment.

2. The diked area must be constructed with a means to drain off rainwater but to prevent spills or leaks from reaching the ground.

3. Diked areas may be emptied by pumps, ejectors, or a restraining valve; however, each of these must be manually activated. All containments are drained by a restraining valve.

4. All valves should be a manual, lockable, open and closed design. Flapper-type drain valves are prohibited.

5. Valves must remain in a locked closed position except when the facility manager or his/her designee is in the process of draining water from the area. Valves must be inspected before and after each use to ensure they are not leaking.

6. Prior to discharging liquid from a containment system, the water should be inspected for visible signs of leaks or spills from the tank.
   - If a sheen is not present and there is no other evidence of spills or leaks, the retained water can be drained to grade. Immediately after draining, the valve must be closed and locked.
   - If a sheen or floating fuel is present, this water must be treated as a waste. A sheen can be removed with sorbent pads; the pads should be handled as petroleum-contaminated waste. If 1/10 inch or more floating fuel is present, it must be skimmed or pumped off and disposed as waste fuel.

7. Containment areas should be drained after each rainfall. Regulations require that accumulated stormwater shall be drawn off within one week of a rainfall event. A log/record of each draining event must be kept and should include the location, date, time, and confirmation as to whether the rain drain was open or closed, personnel who performed the draining, verification of a sheen or not, and any measures taken to address a sheen if present. Draining must be performed under responsible supervision.

8. Containment areas must be inspected at least once a month to ensure they are not leaking and are properly sealed.

9. During normal operations, if a spill or leak occurs within the diked area, the petroleum product must be appropriately cleaned up to prevent a sheen after the next rainfall.

10. If deficiencies are noted during inspections of containment systems, work orders should be submitted by the facility manager.

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MONTHLY INSPECTION CHECKLIST
45th SW ABOVEGROUND PETROLEUM STORAGE TANK (AST) SYSTEM

(**Circle**): REGULATED OR UNREGULATED

FACILITY NO.:_____ PRODUCT:_____VOLUME:_____

TRAINED MONITOR (Print):_____ PHONE:_____FAX:_____

	Tank	Piping	Containment	Tank	Piping	Containment	Tank	Piping	Containment	Tank	Piping	Containment
Month / Day / Monitor's Signature	JAN/			FEB/			MAR/			APR/		
Evidence of Leak/Wetting												
Interstitial Monitoring												
Discoloration of Coatings												
Blistering /Corrosion												
Alarms Functional												
Structural Damage or Cracks												
Warning Signs/Markings												
Fill Gauge Functioning Properly		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Containment Area Drained	N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A	
Containment Area Drain Valve Closed & Locked	N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A	
Venting Visual Check		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Grounding System Functional			N/A			N/A			N/A			N/A

Month / Day / Monitor's Signature	MAY/			JUNE/			JULY/			AUG/		
Evidence of Leak/Wetting												
Interstitial Monitoring												
Discoloration of Coatings												
Blistering /Corrosion												
Alarms Functional												
Structural Damage or Cracks												
Warning Signs/Markings												
Fill Gauge Functioning Properly		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Containment Area Drained	N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A	
Containment Area Drain Valve Closed & Locked	N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A	
Venting Visual Check		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Grounding System Functional			N/A			N/A			N/A			N/A

Month / Day / Monitor's Signature	SEPT/			OCT/			NOV/			DEC/		
Evidence of Leak/Wetting												
Interstitial Monitoring												
Discoloration of Coatings												
Blistering /Corrosion												
Alarms Functional												
Structural Damage or Cracks												
Warning Signs/Markings												
Fill Gauge Functioning Properly		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Containment Area Drained	N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A	
Containment Area Drain Valve Closed & Locked	N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A	
Venting Visual Check		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Grounding System Functional			N/A			N/A			N/A			N/A

N/A = NOT APPLICABLE **✓ = NO DISCREPANCY** **X = DISCREPANCY**

NOTE: Upon discovery, call in discrepancies to the Customer Service Unit. For all product releases inside, and spills outside the containment, call 911 and ask for Spill Response Team. Fax WON's for all documented discrepancies at CCAS and Florida Annexes to (853-6543) and (494-5965) for Patrick AFB. All monthly inspection records must be kept at the facility for a minimum of two (2) years.

See reverse side for additional data fields.

Tank Use: _____

Date tank installed: _____

Regulated tank (Y or N): _____

Tank registration on file: _____

FDEP required records: _____

Inventory measurements and reconciliation _____

Inspection release detection _____

Dates of upgrading of tank systems _____

Results of maintenance examinations _____

Results of all pressure tests _____

Results of tightness tests of integral piping _____

Descriptions and dates of repairs _____

Records of types of fuels stored _____

Closure assessment reports _____

Release detection equipment performance claims _____

Last maintenance requested (task/WO#/date):

Last maintenance performed (task/WO#/date):

Facility phone #:_____

Facility fax #:_____

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MONTHLY INSPECTION CHECKLIST
45th SW UNDERGROUND PETROLEUM STORAGE TANK (UST) SYSTEM

(Circle): REGULATED OR UNREGULATED

FACILITY NO.: _____ PRODUCT: _____ VOLUME: _____

TRAINED MONITOR (Print): _____ PHONE: _____ FAX: _____

	Tank	Piping	Containment	Tank	Piping	Containment	Tank	Piping	Containment	Tank	Piping	Containment
Month / Day / Monitor's Signature	JAN/			FEB/			MAR/			APR/		
Monitoring Well Results		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Inventory Reconciliation		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Maintenance Examination of Alarms/Tank Sys/Cathod. Prot												
Release Detection for Tanks & Sumps		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Release Detection for Double Walled Piping & Sumps	N/A		N/A	N/A		N/A	N/A		N/A	N/A		N/A
Release Detection for Dispenser Liners	N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A	

Month / Day / Monitor's Signature	MAY/			JUNE/			JULY/			AUG/		
Monitoring Well Results		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Inventory Reconciliation		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Maintenance Examination of Alarms/Tank Sys/Cathod. Prot												
Release Detection for Tanks & Sumps		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Release Detection for Double Walled Piping & Sumps	N/A		N/A	N/A		N/A	N/A		N/A	N/A		N/A
Release Detection for Dispenser Liners	N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A	

Month / Day / Monitor's Signature	SEPT/			OCT/			NOV/			DEC/		
Monitoring Well Results		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Inventory Reconciliation		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Maintenance Examination of Alarms/Tank Sys/Cathod. Prot												
Release Detection for Tanks & Sumps		N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A
Release Detection for Double Walled Piping & Sumps	N/A		N/A	N/A		N/A	N/A		N/A	N/A		N/A
Release Detection for Dispenser Liners	N/A	N/A		N/A	N/A		N/A	N/A		N/A	N/A	

N/A = NOT APPLICABLE **✓ = NO DISCREPANCY** **X = DISCREPANCY**

NOTE: Upon discovery, report all discrepancies to the Customer Service Unit. For product spills to the environment, call 911 and ask for Spill Response Team. Fax WON's for all documented discrepancies at CCAS and Florida Annexes to (853-6543) and (494-5965) for Patrick AFB. All monthly inspection records must be kept at the facility for a minimum of two (2) years.

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Date tank installed: _____

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FDEP required records: _____

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Inspection release detection _____

Dates of upgrading of tank systems _____

Results of maintenance examinations _____

Results of all pressure tests _____

Results of tightness tests of integral piping _____

Descriptions and dates of repairs _____

Records of types of fuels stored _____

Closure assessment reports _____

Release detection equipment performance claims _____

Last maintenance requested (task/WO#/date):

Last maintenance performed (task/WO#/date):

Facility phone #:_____

Facility fax #:_____